

The Candy Manufacturer

A Technical and Commercial Magazine for Manufacturing Confectioners Exclusively
Published by THE CANDY MANUFACTURER PUBLISHING CO., Stock Exchange Bldg., Chicago

Vol. II

JUNE, 1922

No. 5



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DWIGHT O. PALMER

Let's Start a Technical Candy School

Pass The Candy Manufacturer around

After reading forward to:

Superintendent

Chemist

Purchasing Dept.

Sales Manager

Return to

Read wherever good candy is MADE



DELFT

The World's Best Food Gelatine

HAROLD A. SINCLAIR, 160 Broadway, NEW YORK

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For Marshmallows DELFT is Supreme.

Harold A. Sinclair

Members: National Confectioners' Association, Midland Club, Chicago Association of Commerce.
Applicant for Membership in Audit Bureau of Circulation.

The Candy Manufacturer

Registered, U. S. Patent Office

"READ WHEREVER GOOD CANDY IS MADE"

*A Specialized Technical and Commercial Magazine for Confectionery
Superintendents, Purchasing Agents and Executives*

Contents Copyrighted 1922, Earl R. Allured

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Superintendents

Vol. II

JUNE, 1922

No. 5

PURPOSE

The purpose of THE CANDY MANUFACTURER is to provide a medium of constructive service and communication between manufacturing confectioners exclusively, a high-class specialized business magazine devoted to the problems and interests incident to the manufacture of confections and the management of a candy factory.

POLICY

THE CANDY MANUFACTURER, being a highly specialized publication, is edited in the interest of the executive, the purchasing agent, the chemist and the superintendent exclusively, and provides a medium for the free and frank discussion of manufacturing policies and problems, methods and materials.

The same corresponding policy applies to the advertising pages which are available only for a message directed to manufacturing confectioners and relative to a reputable product or service applicable to a candy factory.

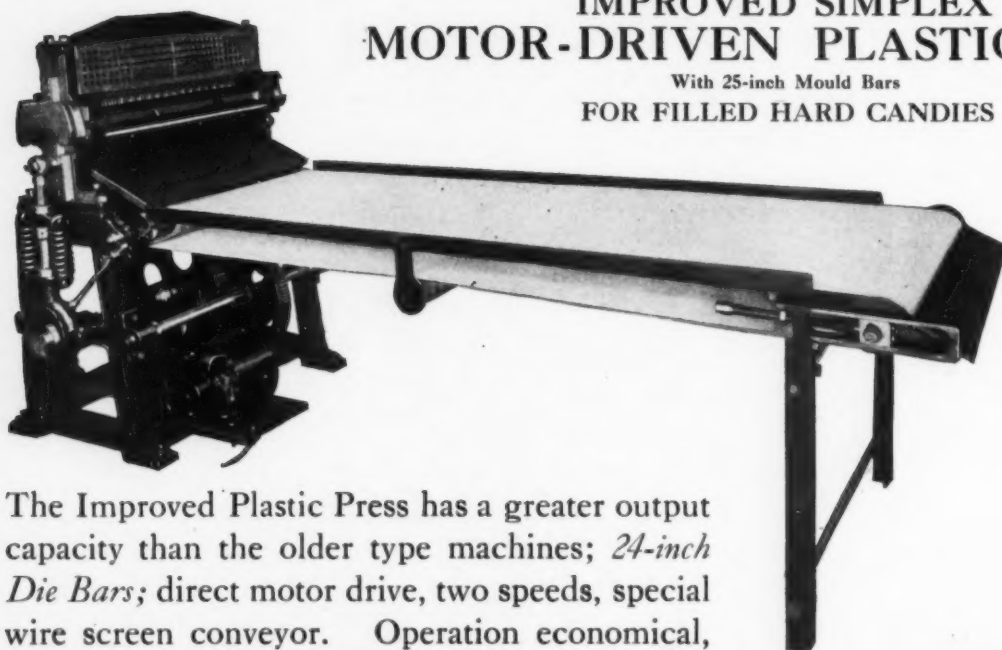
The Candy Manufacturer believes in

1. A Technical Candy School or Institute.
2. A Uniform Method of Standardized Cost.
3. Maximum Labor and Machine Efficiency for an Equitable Wage.
4. The endorsement and adoption of The National Standard Catalogue Size, Invoice Form and Coal Contract.
5. A National Council of Confectionery Superintendents representing local and territorial organizations.

DO NOT CONFUSE The Candy Manufacturer with other publications with similar names published in Chicago. Be sure of our street address, please: 30 North La Salle Street, Stock Exchange Bldg.

IMPROVED SIMPLEX MOTOR-DRIVEN PLASTIC PRESS

With 25-inch Mould Bars
FOR FILLED HARD CANDIES



Two Big
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The Improved Plastic Press has a greater output capacity than the older type machines; 24-inch Die Bars; direct motor drive, two speeds, special wire screen conveyor. Operation economical, simple and exceptionally accurate—every machine given a practical test before shipment.

Simplex Steam Vacuum Cooker

Cooks straight sugar perfectly, or any percentage of corn sugar.

Cooks scrap or any combination of ingredients.

Capacity, 5000 pounds daily, guaranteed

Built For Gas Also

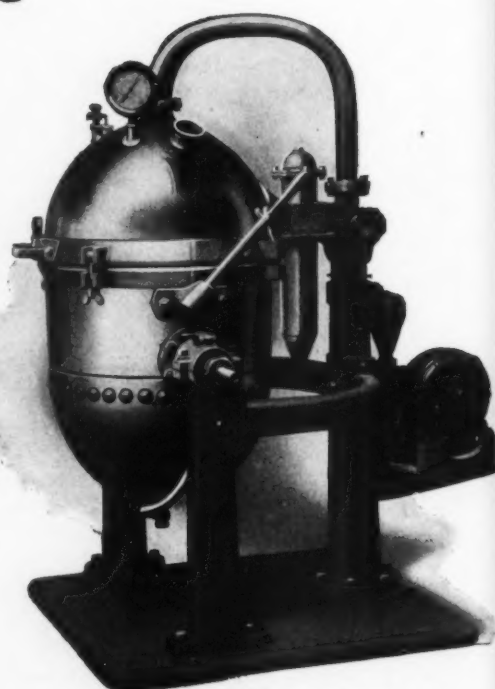
Capacity, 3400 pounds daily, guaranteed
(With extra melting kettle.)

400 in Use

Send for literature—No obligation

VACUUM CANDY MACHINERY COMPANY

JERSEY CITY, 74 Pearl Street



SIMPLEX STEAM VACUUM COOKER

(Process Pat. June 30, 1914)

The Improved Process for Making
Hard Candies

DRIER WHITER CLEARER

326 W. Madison Street, CHICAGO

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The Candy Manufacturer's Approved Advertising of Confectioners' Machinery and Supplies

and Miscellaneous Advertising Directed to Manufacturing Confectioners'

POLICY: THE CANDY MANUFACTURER is essentially a manufacturers' publication and therefore is a logical advertising medium only for confectioners' supplies and equipment. The advertising pages of THE CANDY MANUFACTURER are open only for messages regarding reputable products or propositions of which the manufacturers of confectionery and chocolate are logical buyers.

This policy **EXCLUDES** advertising directed to the distributors of confectionery, the soda fountain and ice cream trade. The advertisements in THE CANDY MANUFACTURER are presented herewith with our recommendation. The machinery equipment and supplies advertised in this magazine, to the best of our knowledge, possess merit worthy of your careful consideration.

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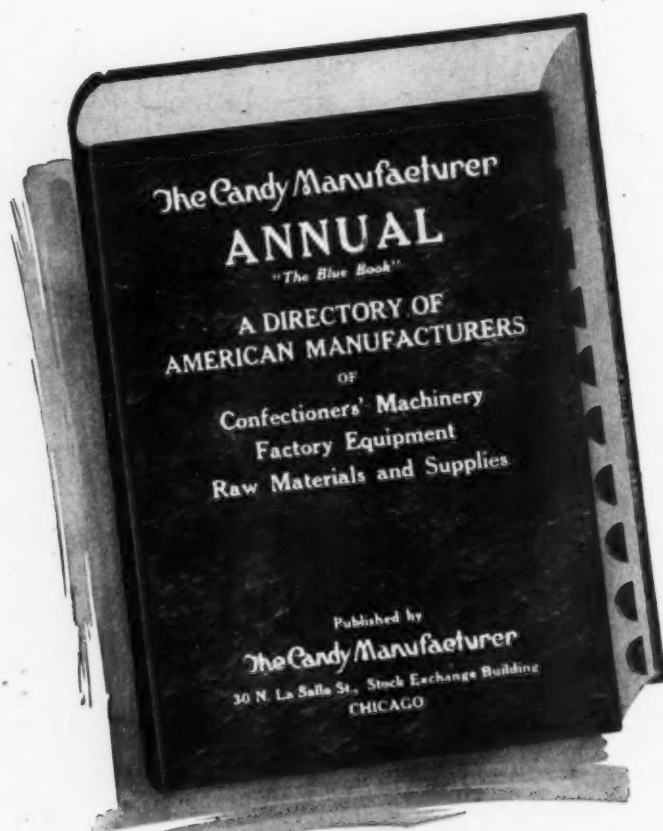
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Where to Buy Confectioners' Supplies and Equipment

While this book is being compiled we would be glad to receive inquiries from our subscribers regarding sources of supply or any problem in purchasing. All information in our Buyer's Directory files is at your disposal.



CONTENTS:

In addition to the Directory feature The Blue Book will contain:

An index of all associations, national, territorial, state and local within the confectionery industry, and the national associations in the allied industries.

Rulings, regulations and legislative situation affecting confectionery supplies and products. Statistical information on the industry. Reports and surveys of special value to the purchasing and sales departments.

A review of books, periodicals and technical literature on candy factory management, methods and materials and the industry in general.

A directory of trade names.

The data for this candy manufacturers' buying guide is being compiled and the book will be issued later in the year. In the meantime our subscribers have access to all information in our directory files. We will be glad to receive your inquiries regarding sources of supply.

The Directory Section

of the Blue Book will contain the following classifications:

Directory of manufacturers of chocolate and candy machinery, refrigerating machinery, factory equipment, tools and utensils.

Directory of manufacturers and importers of confectioner's colors, flavors, essential oils, gums, extracts and essences, gelatines, starch, corn syrup, molasses, honey, milk products and all raw materials.

Directory of manufacturers of chocolate coatings, liquors, and cocoa butter; coconut oils, butters and cocoa butter substitutes.

Directory of brokers and importers in cocoa beans, coconut, fruits, nuts, etc.

Directory of sugar brokers and refiners.

Directory of peanut brokers and growers and manufacturers of peanut machinery.

Directory of manufacturers of paper boxes, fancy, set-up and folding; candy containers—tin, glass, redwood, baskets, leather, etc.

Directory of manufacturers of paper box liners, laces, bonbon cups, seals, trimmings, etc., box papers and box tops.

Directory of manufacturers of box wraps, bar wraps, foils, waxed papers, dipping papers, bags and paper specialties.

Directory of manufacturers of shipping containers: corrugated, solid fibre and wood boxes, and pails.

Directory of lithographers and manufacturers of "Dealer Helps" and advertising specialties, window trims, store signs, display cards, hangers, premiums, souvenirs, etc., etc.

The Candy Manufacturer Publishing Co.

30 N. La Salle St., Stock Exchange Bldg.
CHICAGO



“Pretty Near the Color” —isn’t Near Enough.

WHEN you use “National” Color Blends in your products, you never have to be satisfied with *pretty near* the color you want. For “National” blends are made in such a wide range of shades that they meet every demand of the users of Certified Food Colors. In all, there are 27 distinct shades—10 different reds, 2 blues, 2 greens, 3 browns, 5 yellows, 2 oranges, and 3 purples.

Every one of these 27 “National” Blends is standardized as to shade, brilliancy and strength, thus insuring uniformity, year after year, in the appearance of the product in which it is used.

Each batch of “National” Food Colors, whether a Primary or a Blend, is certified to and tested by the U. S. Department of Agriculture, Bureau of Chemistry. And every package sold is sealed at the factory and stamped with the Government lot number.

Many difficult color problems submitted to us by users of “National” Colors, are being constantly solved by our experts. We

gladly place this technical service at your disposal without cost.

“National” Blends (certified)
most popular in the Candy and Confectionery Trade

Ceylone.....	Raspberry Red
Rubaline.....	Currant Red
Sulta.....	Strawberry Red
Sitro.....	Lemon
Burno.....	Red Orange
Toki.....	Yellow Orange
Rosea.....	Rose Pink
Carota.....	Carnation Pink
Benga.....	Fruit Red
Solona.....	Dark Yellow
Borderine...	American Beauty
Myrtine.....	Pistachio Green
Celetine.....	Blue
Pluma.....	Plum



Leading supply houses and jobbers sell “National” Certified Food Colors — insist on getting them.

National Aniline and Chemical Company, Inc.

New York	Chicago	Charlotte	Toronto	Philadelphia
Boston	Hartford	Montreal	Providence	San Francisco

Von Dannenberg & Pick

82-92 Beaver St. 129 Pearl St.

NEW YORK CITY

BROKERS

In All Grades of

Cocoa Beans, Cocoa Butter
and Cocoa Products



THOS. MILLS & BRO., Inc.

Established 1864

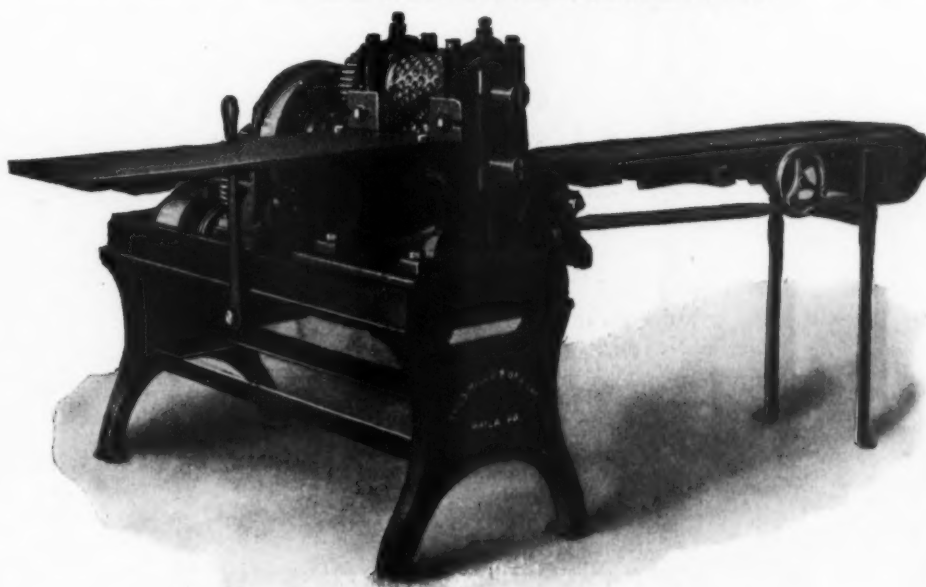
CONFECTIONERS' TOOLS AND MACHINERY

1301 to 1315 North Eighth St.

PHILADELPHIA, PA.
STATION O



Automatic Caramel Cutting Machine—Cuts Both Ways in One Travel of the Bed, Used in Leading Factories for Caramels, Coconut Blocks, Etc., Send for Circular.



Large Power Drop Frame with Stand and Endless Belt Conveyor; Our Latest Type for Large Output and Heavy Duty.

WHEN IN
CHICAGO



VISIT OUR
BOOTH 32

Our Catalog "O" Should Be in the Hands of Every Factory Superintendent; Sent on Application. Please Mention "The Candy Manufacturer" It Helps.

For Your Approval

We know, through exacting laboratory and practical tests, that Hudson's Concentrated Flavor Vanilla and Tonka Blend No. 52 Special is dependable, high-grade and of uniform quality—that it will, when used in your candies—command your highest esteem. Because we know this, we can unreservedly guarantee it to any candy manufacturer. We welcome the opportunity of sending you a sample gallon, subject to your approval. We'll let you be the judge yourself. We'd rather have your absolute confidence first before selling our product to you. And we have found that this confidence is most soundly established when prospective users have tried our product in their own plant.

Hudson's Concentrated Flavor Vanilla and Tonka Blend No. 52, Special

Six times stronger than the Extract Contains no excessive moisture; hence, eliminates "bubbling" in candy. Flavor positively will not boil out or be impaired by extreme heat. The flavor is retained until your candy is consumed. Produces in candies that delightful, smooth, velvety, true Vanilla want-more taste. It is the flavor that sells candy. Most economical and satisfactory flavor you can use.

Send for Sample Gallon. We positively guarantee satisfaction. You take no risk, as you are privileged to return shipment if you are not convinced of its superior merit.

For Thirty-four Years Hudson's Flavors
Have Meant Highest Quality

The Hudson Manufacturing Co.

Gabe S. Wegener, President

INCORPORATED

Established 1888

VANILLA PRODUCTS

119-121 No. Union Ave.

CHICAGO, U. S. A.

Branches at Dallas, Texas; Los Angeles, Cal.

Send for this literature—

It gives practical recipes which have been tested and proven by successful confectioners.

It will help you make the best candy,—

So will

KOKOREKA

For Chocolate
Coatings and
Caramels

PLASTIKO

For Fillings

PARASUB

For Easter and
Penny Goods



Our practical demonstrators "Armitage" and "Hickey" are in the field constantly, working with the superintendents and practical men of the candy factories. This is part of our service. Can we be of service to you?

Write for free samples and booklet—"Science in Confectionery;" also for our new special literature "Uses and Abuses of Chocolate Coating," "How to Salt Peanuts" and "Popping Corn with Ko-Nut."

INDIA REFINING CO.

McKeen and Swanson Streets
PHILADELPHIA

Stocks Carried in All Principal Cities

Kandex will solve your Caramel Problems

What Kandex Does

It produces a caramel that will stand up however hot or humid the weather—a caramel that can be cooked at a lower temperature—making it softer and better to eat—a caramel with wonderful body—a caramel that will not “squat” or leak—but that stays firm, shapely, yet soft at 120° F., and 85% humidity.

Kandex insures 100% Quality, yet in most cases cuts your cost of manufacture from $\frac{1}{8}$ to 2 cents a pound—1 pound of Kandex will replace 4 pounds of sweetened condensed milk.

What Kandex Is

Kandex is an absolutely pure—absolutely healthful product consisting mostly of protein and fat—just the two ingredients you are looking for when you buy a milk product. One pound of Kandex contains 4 times as much protein as 1 pound of condensed milk.

How to Prove Kandex

Send for a Sample today and full directions for the use and proof of what a big manufacturer calls the “wonder product of the age”—for Kandex is new. But not untried. It has made good for more than a year in laboratory tests and in the plants of the country's most famous manufacturers.



Who Is Back of Kandex

A company that has been supplying the highest grade manufacturers in the country with the highest grade products made for more than twenty-five years—

*For Sample
address Kandex Department*

THE NUCOA BUTTER COMPANY

NUCOA BUILDING

293 Fourth Avenue

New York

Candy Flavors



SINCE there appears to be a growing disposition among all Manufacturers of Food Products, and especially Manufacturing Confectioners, to discontinue the use of the old-time Ethereal Flavors, it has been suggested to us that there might be a good demand for Flavors of the "MODERN TYPE," based upon the extractive matter of sound, ripe fruit, which are especially adapted for **HARD CANDIES** and will impart a satisfactory Flavor of **True Fruit Quality** to the finished product.

Our studies in this field, in the production of highly concentrated fruit extractions, fit us particularly for this kind of work, and after extensive experiments in our Laboratories we are now in a position to offer the following **Flavor Group**:

Hard Candy Flavors

APPLE	HONEY
BANANA	LOGANBERRY
BLACKBERRY	PEACH
CHERRY (with Pit Flavor)	PEAR
CHERRY (without Pit Flavor)	PINEAPPLE
CHERRY, Wild	RASPBERRY
CURRENT, Black	ROSE
CURRENT, Red	STRAWBERRY
GOOSEBERRY	STRAWBERRY, Preserved
GRAPE	VIOLET

All of these Flavors are of the highest concentration, have the delicious aroma of the fruit itself, and have been manufactured with a special view to permanence and to **withstand considerable heat**. In addition to the large amount of natural extractive matter from the fruits present, the Flavors contain sufficient Ethers, Esters, Vegetable Tinctures, etc., to provide the necessary strength and

impart the special characteristics necessary and claimed for this group.

One ounce only is required for 100 pounds of candy for pan work, hard candies, fruit drops, lolly pops, and also chewing gum, in fact, in all goods where the Flavor is introduced at comparatively **high temperature**.

For all other kinds of confectionery, particularly cream work, the following groups have been successfully employed:

TRUE FRUIT AROMA ESSENCES

Extra Concentrated

which represent nothing but the extractive matter of **sound, ripe fruit**; and our

FRITZBRO-AROMES

which are the **Ideal Flavors of Highest Concentration**, based on Fruit Extractions and fortified with other harmless ingredients to accentuate the **special characteristics** of the respective fruit.

With these three lines, you can solve **any problem** of flavoring candies, of whatever kind they may be.

Samples and further details will be cheerfully furnished upon application.

FRITZSCHE BROTHERS, Inc.

CHICAGO BRANCH:
33-35 West Kinzie Street

82-84 Beekman Street,
NEW YORK



No Gray-Ashy Chocolates This Summer

Not if you use

ACOCOAT

The Pure Vegetable Butter that Stands Up

Acocoat will stand up in any weather. It was perfected for chocolate work, kisses, caramels, nougats that hold their shape and retain their satiny gloss however high the temperature.

Acocoat is the result of months of research work—months of laboratory tests—and has made good in the biggest plants in the country.

It replaces Cocoa Butter on every count and gives results not possible with cocoa or any other butter on the market.

Don't have any "Returned Goods" evil this season. Let Acocoat insure your products from plant to consumer.

Send today for sample and full directions. We will also send a sample of Acoset—a hardener. We maintain a fully equipped laboratory specializing on our vegetable fats and oils. You are invited to use the services of our chemists and practical confectioners—put any of your manufacturing problems up to them.

American Cocoanut Butter Company

Makers of ACOMO, ACOMINE and MAROKO

CHICAGO

127 N. Dearborn St.

NEW YORK

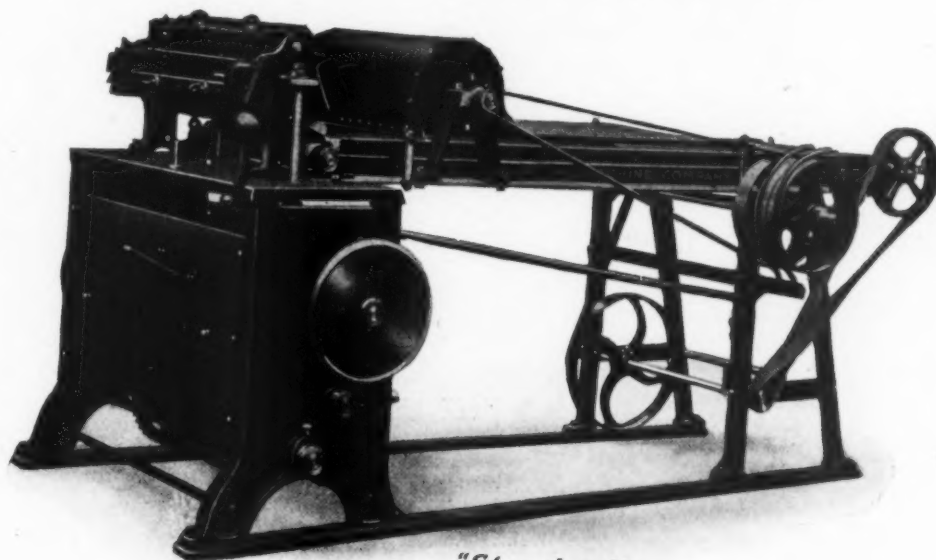
297 Fourth Avenue



To insure prompt service, complete warehouse stocks are maintained at the principal distributing centers.

A High Grade Confection With a Larger Profit

Satin Finish or Clear Filled Candies, Raspberries, Peanuts,
Acorns, Shells, Almonds, Asparagus Tips, Beans, Etc.



"Standard"

The Original Vienna Standard Plastic Machine

Price, \$495.00. Cooling and Blowing Attachment, \$110.00.

Hand Engraved Dies, 22 inches, per set, \$90.00.

F. O. B. { New York City Vera Cruz } DUTY PAID
 { Galveston Montreal }

The Vienna Plastic Press Automat

*An ingenious combination of
Sizer, Plastic Press and Cooler-Conveyor*

For concerns operating 2 or more Plastic Presses, we recommend the Automat, which does away with 3 attendants and has a minimum capacity of at least 2 modern Plastic Presses. Only 50% of the former die-bar investment is required and the AUTOMAT will take your old dies (if you have already a Plastic Machine) whether they are 18" or 22" or 24" long.

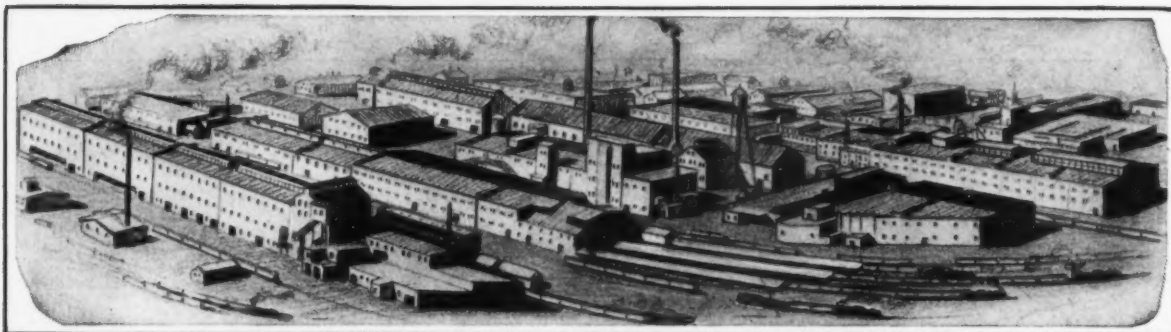
This machine is only adapted for concerns demanding highest production combined with the highest quality.

QUICK DELIVERIES.

Sole Distributors:

SPECIAL MACHINE CO., 39 Cortlandt St., New York City

Chicago Representative: W. HOLMAN, Permanent Confectionery Exhibit, Wrigley Bldg., Chicago



Where "UCOPCO" is made

There Are Reasons Why This Plant Has Been Operating to Capacity for the Past Four Months

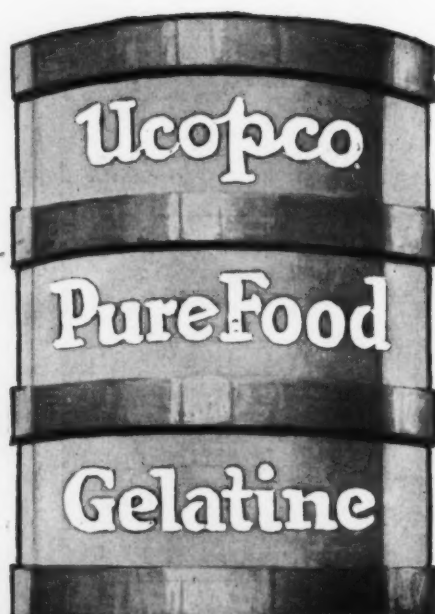
WHEN any plant finds it necessary to run to utmost capacity during a period of depression, it proves conclusively that its product must rank far above the average.

During the past four months our mammoth plant has been running night and day and immediately shipping its entire production.

Salesmanship must be given credit for its part in creating this unusual success. But salesmanship alone could not produce this phenomenal condition.

The product must be right.

Let us show you why UCOPCO Gelatine is so tremendously popular.



The United Chemical & Organic Products Co.
4200 S. Marshfield Ave. New Orleans 401 E. 45th Street
Chicago, Ill. New York, N. Y.

"UCOPCO Comes Sealed in Red Drums"

Ucopco Pure Food Gelatine

A Wrapping Machine for Small Confections and Other Products

Wraps in foil, waxed or glassine paper and bands, sealing the bands.

Equipped for magazine or conveyor feed and delivery stacker for finished product, as desired.

Operates at speed of 80 to 110 per minute, according to shape and condition of pieces to be wrapped.

Every machine guaranteed to fully meet all claims made.

One manufacturer using more than 10 machines of this type for small pieces and several other manufacturers using 1 to 4 machines. Several repeat orders.

Send for photographs and information in detail.

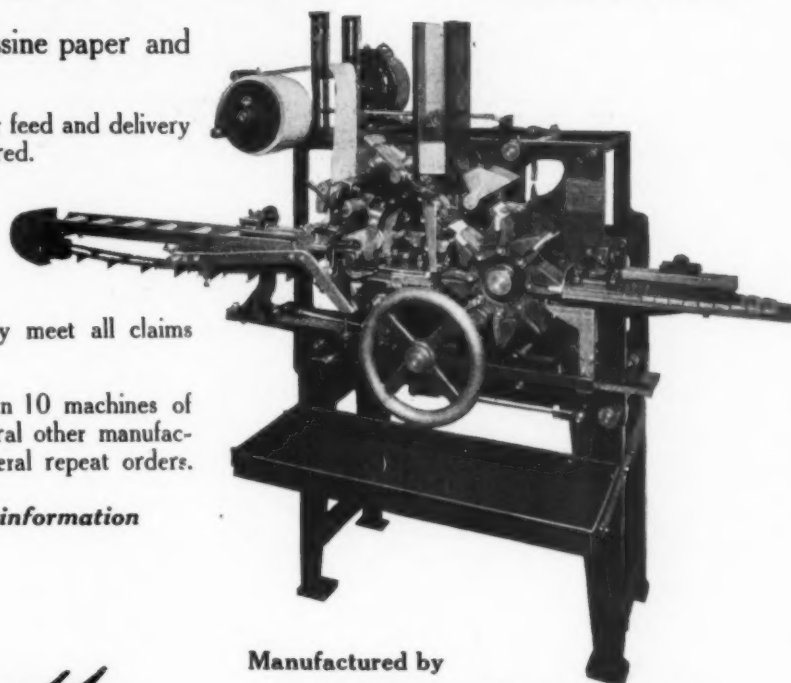
Sold by

L. Weiscope

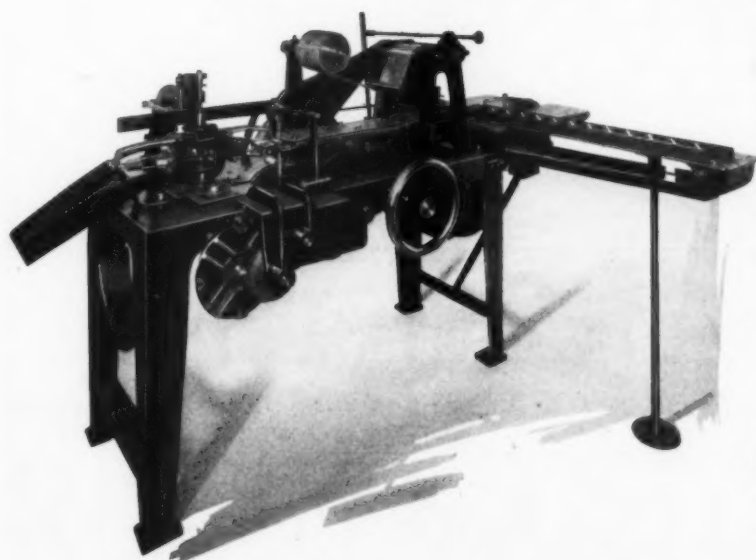
30 Church St., NEW YORK CITY

Manufactured by

FERGUSON & HAAS,
515 Greenwich Street,
NEW YORK CITY



A Lollipop (Sucker) Wrapping Machine



90 per minute—one operator.

Every machine guaranteed to fully meet all claims made for it.

Wraps several sizes.

If Lollipop is not fed in on feed conveyor, the machine does not cut off wrapper—thus avoiding paper waste.

Write for terms and particulars to

L. Weiscope

30 Church Street,
NEW YORK CITY

Vanilla Flavoring Better than the Bean

THERE is no test of Vanilla flavoring quality, economy or satisfaction that is not best and most dependably met by Ozone-Vanillin.

An ounce of Ozone-Vanillin has the flavoring energy of about 2½ pounds of superior Vanilla beans and by proper manipulation is soluble in 10% alcohol. The immense saving herein attained is truly representative of the efficiency principles without which no manufacturing organization is really complete.

Ozone-Vanillin is absolutely pure, derived solely from selected vegetable sources by an exclusive process which eliminates every trace of superfluous matter and derives an aromatic

body identical with the Vanillin which would result from perfect purification of the chief flavoring principle of best Vanilla beans.

Ozone-Vanillin is utterly uniform in character and results. Herein lies a significant advantage over Vanilla beans, which by their nature are bound to vary in size, quality and flavoring value.

Thus Ozone-Vanillin is highly favored by those progressive manufacturers who realize that there can be no standardization of the finished product or of ultimate profit unless the flavoring base be standard in all the essentials of quality, economy and satisfaction.

UNGERER & COMPANY

124 West 19th Street

Philadelphia, Pa., 514 Arch St.

Chicago, Ill., 326 W. Madison St.

NEW YORK CITY

San Francisco, Calif., 116 N. Montgomery St.

New Orleans, La., 305 Baronne St.

Paris, France, 11 Rue Vezelay

OZONE-VANILLIN

PURER, SURER THAN THE BEAN

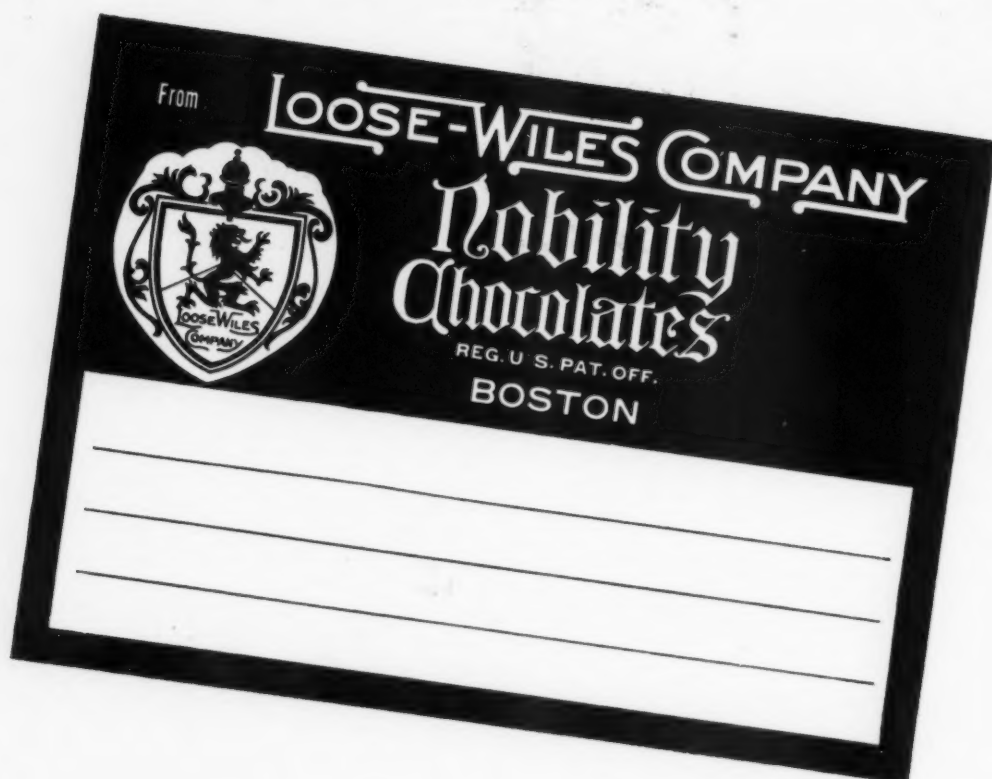


OUR TRADE MARK
A GUARANTEE OF QUALITY
IN WORKMANSHIP AND MATERIAL

GRAND RAPIDS LABEL CO.
PEARL ST., AT THE BRIDGE
GRAND RAPIDS, MICHIGAN

SEALS
ADDRESS LABELS
STICKERS

SAMPLES ON REQUEST



AN ATTRACTIVE PACKAGE LABEL
is as essential as good stationery---

An attractively marked package creates a good impression and is in keeping with the appearance of your stationery and with the quality of your product.

Grand Rapids Quality Package Labels
are designed and printed to suit your requirements.

Write us today--on your business stationery, please--for sketch of label showing your copy.

GRAND RAPIDS LABEL COMPANY
PEARL - STREET - AT - THE - BRIDGE
GRAND RAPIDS .. MICHIGAN



WITH THE PUBLISHER

Let's Start Something

An Appeal to the Confectionery and Allied Industries for Co-operation in the Establishment of

A Technical Candy Institute

A CANDY school giving technical instruction and practical training for confectionery superintendents, foremen, journeymen candy makers, girls for dipping, packing, etc.

A technical institute adequately equipped with modern candy machinery, an analytical and research laboratory, class rooms, etc., also the necessary facilities for manufacturing at least the staple lines of confectionery and making practical demonstrations and actual tests of various methods and materials.

An institution corresponding in purpose to the Sweeney and Rahe Automobile schools of Kansas City, Missouri; the Arsenal Technical Schools of Indianapolis, the Drexel Institute

of Philadelphia, the Dunwoody Institute of Baking at Minneapolis and the Siebel Institute of Technology of Chicago with its advanced courses in baking and refrigeration.

May we have a response which will truly represent the pulse of the industry on this proposition, please? We would like to have an expression from those interested which will help us work out the details of organization and a practical plan which will prompt the whole-hearted co-operation of manufacturing confectioners and insure the success of the institute.

Give your opinions, if you will, as suggested by the questionnaire below and add your individual comments in detail.

QUESTIONNAIRE

1. *Should the candy school be an independent institution or affiliated with some established technical institute?*
2. *How can competent instructors be obtained?*
3. *Suggest an outline of a course of instruction which should be provided,—a home study course and a resident course.*
4. *Should there be offered an elementary course of a vocational nature and recruit new material from the open labor market and train them for positions as helpers and candy makers?*
5. *Should there be offered an advanced course for foremen and superintendents?*
6. *Is it logical to expect that manufacturing confectioners will send students to the institute from the ranks of their own organization?*
7. *Is it also logical that manufacturers of candy machinery and supplies—especially raw materials—will take advantage of the institute to equip their salesmen with at least a semi-practical knowledge of modern methods of candy making?*
8. *What time of year should these courses be scheduled?*
9. *What would be a reasonable tuition charge for the resident course?*

This matter deserves the immediate serious consideration of every reader of **THE CANDY MANUFACTURER**. It involves one of the most constructive things which could possibly be accomplished for our industry.

Definite action will be taken toward the establishment of a Technical Candy School just as soon as a practical and feasible plan is worked

out and we have the tangible evidence that the confectionery and associated industries will support such an undertaking and lend their whole-hearted co-operation toward the successful maintenance and development of such an institution.

EARL R. ALLURED, President,
The Candy Manufacturer Pub. Co.



34 Pyramids — \$70,000,000!

TEN years ago \$8,000,000 worth of fibre shipping boxes were used—last year some \$70,000,000—which would stack up as 34 Egyptian pyramids, each 481 feet high by 756 feet square at the base!

This change of \$70,000,000 per annum from shipping in wood to shipping in fibre can mean only one thing—**BIG SAVINGS TO SHIPPERS.**

One line which is rapidly discovering this saving is candy. More and more are up-to-date candy manufacturers shipping

CANDY —in *Container Club Fibre*

They find that candy rides in our fibre boxes as on a cushion; that in summer our corrugated board acts as an insulator and locks out the heat; that soft candy arrives uncrushed and unmelted! It is such things as these which satisfy customers. And customers are not angry when they discover their freight charges are less!

“Lend a hand”—to Yourself

Look into the matter. There are other innumerable advantages and savings.

Our 26 members furnish an exceptional Service. They alone of fibre manufacturers are affiliated with the great Mellon Institute of Pittsburgh. Any member will design you, free of all cost, a box, tested in advance, which will carry your candy in safety. It costs nothing to know. What you learn will likely save you thousands of dollars! Yes—Container Club Fibre SAVES!



Address: *The Container Club*
Dept. T2 608 S. Dearborn St., Chicago

[Note: The Container Club is an Association of manufacturers and builders of CORRUGATED and SOLID fibre containers of very superior quality. Their individual plants—some forty in number—are located from Massachusetts to California.]



EDITORIAL

Commercial Value of Honesty

WE will not attempt at this time to write the kind of an editorial which this subject deserves. However, it is a worth-while thought to consider when determining policies, especially at this time in our industry, when we are all wrestling with a highly competitive market.

Consider purely the commercial angle to honesty—that is, make an honest product and be honest with your organization, honest with your competitors, honest with your trade and honest with the consuming public as far as your product is concerned, not alone because of the principle involved, but because you can really make more money with such a policy. Not only make more money, but make more happiness. Surely those are the essentials of an honest-to-goodness success.

An Appreciation

On the Occasion of Our Anniversary

THIS is the anniversary number of **THE CANDY MANUFACTURER**. This and previous issues are the best evidence of the practicability of our policy of devoting the magazine exclusively to the manufacturing branch of the industry.

Our subscription list reveals the fact that candy factory superintendents, foremen, purchasing agents, chemists—the practical men of the candy and chocolate industries—have spent their own good money in appreciation of a specialized magazine, edited in their professional and commercial interests. In many instances **THE CANDY MANUFACTURER** is mailed to their homes.

With such a contact, this magazine has an unprecedented opportunity to render a valuable service to our industry if our readers and advertisers will make use of it to the utmost and work with us closely in making **THE CANDY MANUFACTURER** a clearing house of technical information—an active medium of communication between the manufacturing fraternity of our industry. We are sure we are also voicing the sentiments of our subscribers when we express our sincere appreciation to the confectionery supply and equipment manufacturers represented in our advertising columns for their very tangible co-operation and recognition of the need in our industry of a technical magazine. These advertisers deserve a double portion of good will and a *preferred consideration* from our subscribers.

For Dessert—"Everybody Likes Candy"

IT was during the festivities of convention week at the Drake Hotel last month. There were three in the party—a manufacturer of candy machinery, a salesman and the editor of **THE CANDY MANUFACTURER**. The menu card was presented and the very solicitous waiter waited very patiently while the guests scanned the menu card for a dessert that would just touch the spot and put the finishing touches to the piece de resistance. There was everything from apple pie to Coupe St. Jacques and Parisian Doll Souvenir, but not a suggestion of the kind of a dessert which would have been most preferable.

"I would like to have about four nice chocolate creams," said one in the party. Another one said, "I always enjoy eating a few pieces of candy after a meal." "That is the only time I do like to eat candy," said the third one.

We refuse to believe that these few individuals were particularly prejudiced because of their interest directly and indirectly in the candy industry. The fact is that *confectionery is an ideal dessert* and that "everybody likes candy" *after a meal*.

It is logical that the public would be immediately responsive to the suggestion of "Assorted Hard Candies," After Dinner Chocolate Creams, or Mints, Bonbons, Assorted, etc., on the menu of hotels, cafes and restaurants. When a guest orders "confectionery," the waiter might bring in a tray of assorted candies and the selection could be made in much the same corresponding way that French pastries are served.

The psychology of listing a variety of confectionery on the menu would be a powerful influence toward the universal recognition of candy as a food. And once that confectionery has proved itself a satisfactory dessert, then the family package of candy will be a staple item of supply for the household. We believe that there is almost a virgin field for candy manufacturers who will properly merchandise a family dessert package of candy using the delicatessen stores and fancy grocery trade as well as the established retail confectionery channels.

It is possible that our industry has overlooked a very potential outlet for confectionery. We believe that nothing more constructive could be done towards stimulating a greater consumption of candy than to concentrate on the objective of getting confectionery on the menu of hotels and restaurants and feature it for the dessert part of a meal, when "everybody likes candy."



R. R. BEAN
President, National Confectioners Association

New Officers of The National Confectioners' Association

President

R. R. BEAN,
Putnam Factory, Grand Rapids, Mich.

Vice-Presidents

GEORGE F. SCHRAFFT,
W. F. Schrafft & Sons Corp., Boston, Mass.

JEROME F. BLOME,
The George Blome & Sons Co., Baltimore, Md.

Secretary and Treasurer

WALTER C. HUGHES,
Chicago, Ill.

Executive Committee

Horace S. Ridley,
New England Confectionery
Co., Boston, Mass.

Herman L. Heide,
Henry Heide, Inc.,
New York, N. Y.

W. E. Brock,
Brock Candy Co.,
Chattanooga, Tenn.

J. A. Cox,
Dilling & Company,
Indianapolis, Ind.

Fred V. Wunderle,
Philip Wunderle,
Philadelphia, Pa.

A. B. Sanderson,
Kibbe Brothers,
Springfield, Mass.

E. A. Wegner,
The Cracker Jack Co.,
Chicago, Ill.

Chester E. Roberts,
Imperial Candy Co.,
Seattle, Wash.

C. H. Voegelé,
The Voegelé & Dinning Co.,
Mansfield, Ohio.

A. F. L. Schmidt,
F. D. Seward Factory,
St. Louis, Mo.

Henry C. Hughes,
Hughes Bros. Mfg. Co.,
Dallas, Texas.

J. B. Funke,
James B. Funke Co.,
La Crosse, Wis.

Resolutions Adopted at the Thirty-ninth Annual Convention of The National Confectioners' Association, Chicago, May 26, 1922

Resolved, That a Package Goods Division of the National Confectioners' Association be formed, and that it be under the direct control of the Executive Committee and that the President of the Association shall appoint a member of the Executive Committee who is a manufacturer of package goods to be the chairman of the Package Goods Division and that said chairman shall serve for a period of one year or until his successor has been appointed.

Resolved by the National Confectioners' Association, That this organization will lend its support to and endorse any honorable and upright campaign that may be approved by the Executive Committee with the object of bringing about a reduction in the tariff on almonds and walnuts and on all such other items as in the judgment of the executives may seem to be advisable.

Whereas, Due to the fact that Cali-

fornia produces between 1 and 2 per cent of the almonds grown in the world while the United States consumes 12 per cent of the world's output, the California production not being sufficient to supply three large manufacturers in the confectionery industry, much less to fill the needs of the entire industry, the high tariff on walnuts and almonds, both shelled and unshelled, will practically necessitate the elimination of these items in the manufacturing of our industry; and in addition the nuts grown in California being unsatisfactory due to their fibrous nature and lacking in the flavor of foreign nuts; and

Whereas, The National Confectioners' Association, representing employment of over two hundred and fifty thousand people, with an approximate capital investment of three hundred and fifty million dollars, in convention assembled at the Drake Hotel, Chicago, do hereby protest at

the injustice of the proposed tariff as affecting their industry, namely:

Almonds in shells.....	5c a lb.
Shelled Almonds	15c a lb.
Walnuts in the shell...	4c a lb.
Shelled Walnuts	12c a lb.

therefore be it

Resolved, That it is the sense of the convention that the following schedule is a just and fair one:

Almonds in shells.....	4c a lb.
Shelled Almonds	6c a lb.
Walnuts in the shell...	3c a lb.
Shelled Walnuts	6c a lb.

which schedule is recommended for substitution in place of the rates as at present contemplated; and be it further

Resolved, That a copy of this resolution be sent to the chairman of the Republican National Committee and to each senator and representative in Congress.

Resolved, That we express our grateful appreciation for the assistance given us by the following



GEORGE F. SCHRAFFT
Vice-President National Confectioners' Association

associations in legislative and other matters and our assurance of our desire to continue to co-operate with them in all matters of mutual interest, and that a copy of this resolution be forwarded by our secretary to each one of the following associations:

New England Manufacturing Confectioners' Association;
Association of Manufacturers of Confectionery & Chocolate of the State of New York;
Philadelphia Association of Manufacturers of Confectionery and Chocolate;
Associated Retail Confectioners of the United States;
American Manufacturers' Association of Products from Corn;
The Central Club;
The Midland Club;
Flavoring Extract Manufacturers' Association;
National Manufacturers of Soda Water Flavors;
Manufacturing Confectioners' Association of Illinois;
Proprietary Association;
The Ohio Confectioners' Club;
Pennsylvania Confectioners' Association;
Western Confectioners' Association.

Resolved, That the National Confectioners' Association give its hearty endorsement to the Near East Relief, a chartered organization of the American Government, pledging our moral and financial support when possible to this work, and urging our friends to do likewise.

Resolutions Adopted by the Commercial Jobbing Confectioners' Association

Resolved, That we go on record as being in favor of a standard package of 120 count for penny goods and 24 count for bar goods, and that we are strongly opposed to 20 and 30 count bar goods.

Resolved, That the members of the National Confectioners' Association give preference to jobbing confectioners whose only means of livelihood is the sale of confectionery, in preference to wholesale grocers, tobacco jobbers, drug houses and others who use candy only as a side line in their business.

Resolved, That the members of the National Confectioners' Association go on record as being opposed to manufacturers who cater to the jobbing trade selling goods direct to the consumer, through clubs, office buildings and factories during the holiday period.

Resolved, That the National Confectioners' Association make every effort in their power toward the improvement of conditions brought about by the present excessive freight rates which have a tendency to retard business in general.



JEROME F. BLOME
Vice-President National Confectioners' Association

N. C. A. and A. R. C. Work Together

YOUR committee, appointed by President Harris, to meet a committee from the National Association of Retail Confectioners for the purpose of discussing a basis of joint action on matters of common interest to the two organizations, herewith report.

A meeting was had on Wednesday afternoon, May 24, 1922, with Messrs. Mullane, Price and Asher, representing the retail confectioners, when the matter was fully discussed and the desirability of such contact was made plainly evident. Such contact can be secured through the secretary's offices of both organizations inasmuch as the Retailers' Association are about to establish their secretary's office in Chicago.

It was therefore unanimously agreed that the committees report back to their respective organizations a recommendation that in all matters of mutual interest the secretaries of the two organizations confer and when necessary bring them to the attention of their respective Executive Committees.

This, in the opinion of your committee, would bring immediate action on all vital matters inasmuch as action by the Executive Committee is necessary before committing the organizations to the support of any desired policy.

Respectfully submitted,
E. K. RICE,
T. R. BLAKESLEE,
WILLIAM P. REED,
Committee.

New Officers Associated Retail Confectioners of U. S.

President:
W. R. COWAN, Hartford, Conn.

1st Vice-President:
GEORGE W. BATES, Canton, Ohio.

2nd Vice-President:
CHESTER A. ASHER, Philadelphia.

Secretary-Treasurer:
W. D. BLATTNER, Chicago.

Council:
Messrs. TOMPKINS, BLATTNER
and GAVIN.

Executive Committee:
ELWOOD B. CHAPMAN,
Philadelphia.
CHARLES MULLANE, Cincinnati.
MR. PRICE, Pittsburgh.
PRESTON MacDIARMID, Detroit.
E. A. G. INTEMAN, New York.
F. L. LORD, Portland, Maine.
FRED SANDERS, Detroit.



The President's Address

Delivered at the Chicago Convention

by H. H. Harris

Retiring President, National Confectioners' Association

FOR the past several months we have been occupied with retrospective views, and almost invariably they have been unpleasant, for during the past twelve months we have been going through a slow process of readjustment, which necessarily has been very trying.

The year 1921 was probably the worst for business generally that has been experienced by most of us assembled here today. We have had to face a formidable list of receiverships and bankruptcies, but really no worse than we should have expected, and the business world has undergone the strain and great losses remarkably well.

It was necessary to come from a high level of prices to a much lower level and this was necessarily a dangerous and very trying transition, but we have made the journey and are today wiser, if not richer, from the experience. While our industry has suffered, we have only to look around us to find other industries that have suffered, and are still suffering worse than ourselves. Statisticians tell us that the worst is over, and we can look forward to the future with a feeling of optimism.

If we do not enjoy a fairly prosperous business from now on it will be mainly our fault. There should be, and I believe there will be, a normal demand for our product, but there will not be an abnormal demand, and we should remember this and govern the output of our factories accordingly. We should give more time, thought and attention to the appearance, packing and quality of our goods than ever before.

Purity and Sanitation

We should insist on the motto of our association, "Purity," being lived up to by every manufacturer of confections, whether the manufacturer be a member of our association or not, and should not only look after the sanitation of our own factories, but of those in our immediate territory, and if necessary, have laws passed and enforced in our respective states making purity and sanitation obligatory.

When we can accomplish this we will not be

beset with false articles relative to children being poisoned by candy, nor will we have bills presented in our state legislatures prohibiting children from purchasing candy without a written consent from their parents or guardians, but to the contrary we could hope for candy to be recognized as a most wholesome food and recommended by physicians. Let the national slogan, "Remember, Everybody Likes Candy," be beyond criticism and attacks of journals and periodicals, and let it follow as a natural conclusion that everybody likes candy, not only because of its palatableness, but because of its purity and food value.

Labor

Before the war our industry paid lower wages than many other industries of our importance, which had resulted in attracting to our factories a less desirable class of labor.

During the war period our scale of wages was materially increased, while in most cases the efficiency of the laborers greatly decreased. In almost every plant in the past twelve months the efficiency of the labor has been increased and labor conditions generally have been more satisfactory even than in pre-war days.

We should continue to insist on efficiency and I believe, if possible, maintain the present scale of wages, or certainly not reduce them appreciably, and in this way we will attract an even higher class of workmen, which will mean a big stride in our industry.

National Advertising

The question of national advertising has been under consideration by our association for several years past in a greater or less degree. Prior to the meeting in Springfield in 1919 a committee was appointed to consider the matter and bring a recommendation to the convention. The committee met and after considerable discussion recommended the expenditure of \$500,000.00 per annum for not less than three years.

Everyone seemed to favor advertising but

(Continued on page 47)



A part of the attendance at the 39th Annual Convention





National Confectioners' Association, Chicago, May 24-26, 1922





Why Candy Sweats

by Dr. A. P. Bryant

Consulting Chemist, National Confectioners' Association

WHEN candy which has been boiled to a temperature around 300 degrees or higher is worked up, in the form of stick candy, for example, it undergoes a "sweating" process and becomes for a while more or less sticky; the same conditions show up in a vacuum boiled hard candy. This sweating is more pronounced in warm than cold weather and in damp than dry weather.

In the previous article of this series the changes which take place in the candy kettle were described, and it was explained that during the process of cooking more or less sugar (sucrose) was broken down into the less complex invert sugars—dextrose and levulose. Both of these sugars differ very greatly from sucrose in the way they crystallize and the size, appearance and behavior of the crystals. The dextrose has the power of slowly crystallizing in tiny crystals containing about 9 per cent of water (water of crystallization). The levulose crystallizes with much greater difficulty or not at all; if it does crystallize it also has the power of absorbing water into the sugar crystals to the extent of about 5 per cent of its weight. Some materials have this property of holding a definite amount of water in their crystals. For example, ordinary potash alum carries over 45 per cent water combined in the alum crystal, while crystals of citric acid contain about 9 per cent.

Dextrose to a slight extent and levulose to a marked extent have the property of absorbing water from the atmosphere and becoming sticky or syrupy. Corn syrup also has a slight tendency to absorb moisture when there is considerable amount in the atmosphere.

The above-mentioned properties of invert sugar, and to a less extent of corn syrup, explain the phenomenon known as sweating. The candy after it comes from the kettle contains from 2 to 4 per cent of invert sugars and after it is worked up and considerable surface is exposed to the atmosphere these sugars, or more particularly the levulose of the invert sugar, absorb moisture from the atmosphere. If the day is damp and warm and there is a large amount of moisture present the candy becomes quite sticky. If there is but little moisture in the air but little stickiness manifests itself.

After a short time the sucrose and dextrose crystallize on the surface of the candy into a protective film and the candy ceases to be sticky and becomes "dry." Under ordinary conditions it will not develop any further tendency towards stickiness and the pieces of candy will be free one from the other when packed in cartons or placed in the showcase of the retailer.

If there has been too much inversion in the candy kettle, or if too much dextrose has been added in the form of corn syrup, the finished candy dries off and forms the protective crystalline surface with greater difficulty. If too much levulose, or what amounts to the same thing, too much invert sugar is present, the candy will not dry at all, but will remain sticky and run together and will have to be worked over.

If the candy is scorched during the process of cooking the condition is made much worse because compounds are formed which freely absorb water from the air and render the candy permanently sticky.

In experiments carried on by the writer it has been found that when not more than 3 or 4 per cent of the sugar has been inverted, the protective crystals readily form and the candy is satisfactory. Where, however, the amount of inversion is 5 or 6 per cent or over it will be necessary either to wrap or sand the goods in order to keep them from absorbing moisture or the goods will remain slightly sticky in damp, humid weather, although they might be all right in dry weather. But no hard or fast rule can be laid down as to the amount of invert sugar which can safely be present because of the other factors entering into the question. When, however, trouble with sticky candy is experienced the remedy is to reduce the quantity of those materials present which may absorb moisture, more particularly the invert sugar. This can frequently be done by the use of a dryer, as described in an earlier article. (April issue, page 50.)

When candy is cooked in the vacuum kettle it is necessary to use more corn syrup than when the open kettle is used because the lower temperature in the vacuum cooking produces less breaking down, less inversion of the sucrose, not enough to produce the desired consistency in the finished hard candy.

The Daring Few—and You

by Herbert Kaufman

THE less one knows the less he is able to realize what is best for him to learn. Ignorance is leery and sneery of what it can't judge. This world would be twice as wonderful if it were not half as bigoted. Those who have done their own reasoning—who have investigated facts before forming conclusions have been exceedingly scarce in every generation.

When we consider nothing too extraordinary for hands and heads to effect, no performance or engagement will want for energy or encouragement.

But when mystery exists, fear and doubt will always persist. Civilization cannot move faster than credulity. Novelty is only miraculous or unfeasible to non-thinkers.

Strike a match in the jungle and the toughest warrior will flee from the appalling sight.

There are yet densely peopled areas where a camera is regarded as a devil machine. It is an elemental trait to suspect the inexplicable.

Progress frightens us before it enlightens us. The passengers on the first slow, lumbering steam cars trembled for life and limb. Even now and quite sincerely you vow you will never make a trip in an airship.

When Henry Ford casually drove his experimental car through Detroit indignant subscribers showered the local press with protests against the "perilous" contraption.

It was years before some New Yorkers could summon courage to journey in the subways and there are at least a million persons in Man-

hattan today who haven't the nerve to TRY the Hudson tubes.

The average mind demands the privilege of estimating all propositions by its own experience.

With Bell, Edison and Marconi to prove that no adventure is too fantastic for confident imagination, the next revolutionary postulate in physics or chemistry or dynamics or engineering will be derided until decided.

While we remain slaves to precedent we can't be masters of opportunity.

The monuments that mask appreciation of genius are far outnumbered by the stones cast at ambitious intelligence.

We no longer pelt and burn the daring few who aspire to teach a better way, but we do reprove the audacity that would improve methods and machines with which we would rather be satisfied than acknowledge superior vision in another.

You wait too long to be convinced—that's why you'll always tag behind the opportune moment.

You haven't sufficient faith in your fellows. Conceit won't permit you to credit keener brains with qualities you fail to develop in yourself; so FORTUNE wearies of your wariness and carries her telephones and airships and automobiles and cash registers and submarines and reclamation projects and trolley lines and chain stores and real estate movements to fearless folk.

Most of us don't get along through lack of chances, but from unwillingness to take a chance.

An Application

"The Daring Few—

THIS issue being the anniversary number of THE

CANDY MANUFACTURER, we would like to pay a tribute to the following manufacturers in the confectionery supply field who responded to our first announcements and placed twelve time non-cancelable advertising contracts starting with our first issue. These are the "daring few" who were not bound by precedent, but rather seized the opportunity of affiliating with a new movement, a new magazine with a new idea and ideal, which they believed would be of inestimable service directly to manufacturing confectioners:

Savage Brother's Company, Ungerer & Company, National Bundle Tyer Company, Vacuum Candy Machinery Company, Bendix Paper Company, The Nulomoline Company, Foote & Jenks, R. C. Taft Company.

The point is that these firms backed their convictions with *action* immediately—regardless of appropriations or precedent—a recognition which gave this magazine the irresistible momentum which it still possesses.

This is an exemplification of the kind of initiative for which the world reserves its big prizes.

—and You"

Our appreciation is certainly extended to *you*—our subscribers who have paid your good money for one to five year subscriptions. *You* have been actuated by the same convictions and deserve the same special mention.

This "get-together-and-keep-together" spirit is the motive power of this magazine and will reward its readers in form of a full accomplishment of all you have reason to expect of your own specialized publication.—EDITOR.

Sugar—Its Physical Properties—IX

Mr. Murphy is one of the foremost Sugar Chemists in America. For fourteen years he was with the American Sugar Refining Company as Chief Chemist and assistant to the Chief Refiner in Boston.



Shall we reserve for you a bound volume of *The Candy Manufacturer* containing Mr. Murphy's complete serial? Price \$5.00. It will also include of course all the other serials of technical articles on schedule, any one of which is worth the price of the volume.—EDITOR.

Action of Sugar With Other Materials

The ninth of a series of articles on "The Physical Properties of Sugar," and what can be done with them to obtain any desired result in confectionery

by Frederic W. Murphy

Frederic W. Murphy Laboratories

Exclusively for The Candy Manufacturer

VERY few materials used with sugar to produce confections are inert, that is, have no chemical influence upon the final product. The use of fillers in candy, such as paraffin, which is inert, and other such materials, is today very rare, though occasionally we find chocolate coatings sophisticated with paraffin. The coating manufacturer can rarely be charged with this sophistication, but in nine cases out of ten the adulteration is done by some short-sighted individual purchaser of the coating.

Dipping Fruits

The use of dipping fruits in the past few years has had a tremendous growth, and their action on sugar is, in the main, one of inversion. Cherries, as a rule, if properly prepared, do not have as great an inverting power on the encasing cream as the other fruits. The process which they are subjected to removes practically all acid from them. But in the use of whole strawberries, pineapple, peaches and oranges, the inversion is positive, and to a degree, proportionate to the amount of acid present.

There is, however, another re-action which often takes place, that of fermentation, which results in the production of gas, with consequent "blowing" of the piece. This is due, sometimes, to the development of yeast cells in the fruit, or from gas forming bacteria present either originally contained or contaminated in the factory before being used in manufacture.

The action of orange peel and sugar is one of extraction of the oil from the cells of the peel, and inversion of the sugar by the acid contained in the peel.

Nuts

Nuts will not absorb sugar on account of the oil which they contain, and when used in a

cream do not invert sugar. In the use of nuts in creams, there is always great danger of mold developing if the cream is of too fluid consistency. There is a method being worked out for the sterilization of nut meats, without the use of heat, which, when perfected, will be of considerable value to the confectioner.

Molasses

Molasses containing variable amounts of organic acids, presents many problems to the confectioner. No two lots are of the same composition, so therefore the same proportion of sugar and molasses used in a batch give, at different times, different results; sometimes the batches being more sticky than at other times. To overcome the strong invertive action of molasses, it is always better to cook the sugar and glucose to the proper degree, and then add the molasses. This prevents the acids of the molasses from inverting the sugar to any great degree.

Gelatines

Gelatines vary in strength or their ability to enter into combination with sugar, and depending upon the goods to be manufactured, depends what grade of gelatin a manufacturer should purchase. More attention is being given to the quality of gelatines used than heretofore, as the line of demarkation between edible and inedible gelatin, or glue, is being more sharply defined by the government. The bacterial contents of a gelatin means much to the confectioner, inasmuch as it means perfect goods, or much spoilage.

Colors

Colors of vegetable origin are, by many, preferred to those of aniline origin, but the range of tints is limited. Certified colors for confectioners, purchased from reputable manufacturers, should not give any trouble. However,

X
of The
Murphy's
also in-
technical
worth

colors so purchased and made up into pastes by supply houses have been many times the basis of considerable annoyance to the confectioner. Some pastes are on the market which are composed of certified color and glucose, which contain gas-forming bacteria, capable of destroying creams. Others contain starchy gums and albumen, which contain yeast and bacteria. The manufacturer cannot be too careful in selecting a reliable manufacturer to supply his needs in this particular line.

Flavors

be

Flavor is one of the basic materials entering into the manufacture of candy, and perhaps is one of the materials least known about. There are various forms of flavors, the true fruit flavors produced by extraction, with suitable solvents; the chemical compounds, such as ethers and esters, which one has to guess just what the manufacturer tried to make. His conscience and the color were his only guides, and raspberry, strawberry, pineapple, peach and banana are all brothers, and no one can tell them apart. And last and more universally used, the essential oils.

Essential oils, being of an oily character, do not enter into combination with the sugar of a confection. The proper use of essential oil in confectionery has been given but scant attention by the average confectioner. In using essential oil for a flavor, the oil, not being soluble, in sugar, necessitates its dispersion in a fine state through a given batch, where it simply rests and gives out its perfume. An essential oil is merely a fatty base containing a volatile perfume.

The element which the confectioner really wants in an essential oil is the perfume and not the inert oily base. If one dissolves the oil in alcohol and makes an extract and adds this extract to a sugar syrup, he precipitates the oil in tiny droplets, but the oil, not being soluble in the syrup, an equitable distribution is impossible. So it is with any confection, whether it be creamed goods, or any other type. Essential oils, not being soluble with sugar, dispersion of flavor under the best of conditions, is very difficult.

The use of the essential oil direct is an equally bad practice, as dependence upon the number of times the batch is folded and the oil divided must be relied upon to give a distribution of flavor.

Again, when using an alcoholic extract on a warm batch, alcohol being volatile carries away considerable quantities of the perfume, which

is the only thing the confectioner wants in an essential oil. An even flavor, therefore, in any batch, depends upon the degree of subdivision of the essential oil. If oils and alcohol and oils are not soluble with sugar, and subdivision into minute droplets of oil to get proper distribution of flavor is necessary, it is apparent that neither the use of oils direct or the employment of an expensive solvent of the oil, such as alcohol, is the proper way to use this material with sugar.

In order to overcome the objections attendant upon the employment of alcohol, a number of flavoring houses have endeavored to render the essential oils soluble by emulsifying them with water to put them in a watery phase.

The problem in producing satisfactory emulsions is to attain a high degree of subdivision or dispersion of the oil in the aqueous or watery phase. If the oil is finely subdivided and is emulsified with water, the water being soluble with the sugar will carry the minute droplets of oil through the batch and the maximum flavor can be obtained.

When such an emulsion is prepared with a maximum subdivision of the essential oil, and the emulsion is permanent chemically, and physically, they are the ideal flavoring material. Unfortunately, however, these conditions are not always met with in practice. Many emulsions, upon short standing, separate into distinct layers, sometimes two or three of water, oil, and other ingredients, or perhaps mold or develop foreign flavors. Such emulsions are unfit for the confectioners' use.

These difficulties outlined above are, by no means, insurmountable, and their elimination is to be found in the domain of applied colloid chemistry. The writer has, himself, prepared emulsions of various essential oils, which have been kept under observation for more than a year, and have retained, intact, their original uniformity and freshness.

To convey to the reader an idea of subdivision attainable by correct manipulation, it might be mentioned that by actual microscopic count (indirect, to be sure, but none the less accurate) a single ounce of these emulsions was found to contain no less than forty billion (40,000,000,000) globules of oil.

From these figures, it can be readily appreciated why this same ounce should suffice to impart to 100 pounds of confectionery or other foods a pronounced and unmistakable flavor. The emulsion type of flavor is, unquestionably, the most economical and satisfactory method of using an essential oil.

COMING—IN THIS SERIES:

Method of Making Invert Sugar; Problems Presented to a Chemist; The Meaning of Pure Food Standards; Factory Control from the Chemist's Viewpoint; The Building of New Types of Confections.

II—Constitution and Properties



The second of a series of seven articles on **Edible Gelatin**

by **Robert H. Bogue, Ph. D.**

*Mellon Institute of Industrial Research, University of Pittsburgh
Research Chemist for Armour & Company of Chicago*

Exclusively for **The Candy Manufacturer**

TO discuss exhaustively, or even adequately, the constitution and properties of gelatin would involve a volume, rather than a brief article, and to any who are disposed to study the subject from the chemical point of view, the writer refers to his treatise* and to the scientific literature.

The organic matter of animals and plants has been grouped into the three great classes: carbohydrates, fats and proteins. The carbohydrates constitute the principal products of plant life—the cellulose which is the woody material of the plant, the starches which are stored by the cereals, and the sugars which are accumulated in the fruits. As a food, the starches and sugars are the principal energy producers.

The fats are stored mainly by animals, but many plants also produce oils—well known ones being the oils of linseed, cottonseed, castor, peanut, cocoanut, etc. As a food they are especially important as energy producers.

The proteins are accumulated to a relatively small degree by plants. The seeds contain a varying amount, and nuts and legumes are especially rich in protein. But in animals the proteins are always high. They are of particular value in the animal economy, because the replacement of body tissue and cells is entirely dependent upon them. This tissue and

the cells of the body are constantly in a state of change, and if proteins are not regularly ingested with food, replacement ceases, and it is only a matter of a short time before death follows.

The proteins are distinguished by their content of nitrogen, and usually, also, sulphur and phosphorus. Milk is rich in the protein *casein*. Flesh contains *myosin*. Eggs contain *albumin*. Blood contains *globulin* and *haemoglobin*. Many other proteins are present in the above fluids and tissues, but those mentioned are of primary importance.

Gelatin is a protein, but is not found *as gelatin* in the normal mineral body. In some pathogenic tissues it does occur. But the parent substance of gelatin, *collagen*, is found in the skin, the connective tissues, the tendons, the cartilage, and

and in the organic portion of the bones. When the mineral matter of bones is dissolved away, as described in the previous installment, there remains a flexible material, known as *ossein*. This ossein is essentially collagen.

The skin is made up of a number of layers of different types of tissue. The outer layer, known as the epidermis, consists essentially of the protein *keratin*. The hair, nails, hoofs, etc., are also keratinous structures. Beneath the epidermis is a thin layer of the protein *elastin*.

Dr. Bogue's Complete Serial on **Edible Gelatin**

MAY:
Raw Materials and Manufacture
JUNE:
Constitution and Properties
JULY:
Testing and Grading
AUGUST:
Chemical and Bacteriological Action
SEPTEMBER:
Buying and Handling
OCTOBER:
Dietary Value and Physiological Action
NOVEMBER:
Importance in Food Products

This series will be supplemented by articles from candy superintendents on the practical handling of gelatin in candy making.

Shall we enter an extra subscription sent to your home address where these instructive articles can be studied at your leisure?—Editor.

*R. H. Bogue, "The Chemistry and Technology of Gelatin and Glue," McGraw Hill Book Company, New York, 1922.

Next comes the true skin composed of collagen, with numerous glands of fat, sweat, etc., embedded in it. Below this is a fleshly layer. Since, in the manufacture of gelatin, the collagen only is desired, because the other bodies named yield no gelatin, one of the steps in the manufacture concerns itself largely with the elimination, by solution, of the others. This is accomplished in the liming operation, and has been described.

The collagen is converted into gelatin by heating with water. During this process the collagen becomes hydrated, that is, water is taken up by the collagen, and it dissolves, forming gelatin.

If the heating process is continued for a long time, and especially in the presence of acids or alkalies, the gelatin molecule becomes broken down into smaller fragments. The largest of these fragments, which are recognized by their properties as distinct from gelatin, are known as proteoses. The proteoses do not form jellies upon cooling, even in highly concentrated solutions. Their viscosity is, however, fairly high. They are more soluble than gelatin, as shown by the fact that they are not precipitated by half saturated magnesium sulfate, while the gelatin is so precipitated. A saturated solution of that salt does precipitate the proteoses.

Upon further hydrolysis, as the water or acid or alkali treatment is called, the proteoses are broken down to smaller fragments, called peptones. These are watery, non-viscous solutions, and are not precipitated by saturated salt solutions.

By still further hydrolysis the final end products of the change are produced, namely the amino acids. There are about twenty of these produced by the hydrolysis of proteins, and the latter appear to differ from each other mainly in the different proportions of the several amino acids that are produced from them.

It is not to be inferred from the above description that in the hydrolysis of a protein the proteoses are first formed to the exclusion of peptones, etc., but if the sample is examined at any time during the early stages of the treatment it will be found to contain all products of the hydrolysis. The amount of the higher (gelatin) molecules present regularly diminishes, but long before the gelatin is entirely gone there will be large amounts of peptones and amino acids formed, as well as proteoses.

From quantitative studies, such as the above, it has been concluded that proteins consist of

the several amino acids combined into large and complex molecules. Gelatin is distinguished by the large amount of the amino acid *glycine* which it contains, and the absence of three important members: cystine, tyrosine, and tryptophane. It is the absence of these three amino acids that makes gelatin insufficient as a *complete* nitrogenous food.

Certain enzymes, as trypsin and pepsin also have the property of hydrolyzing gelatin, but the proportion of the several types of end-products is somewhat different from that produced by water or electrolytes. There are also many types of molds and of bacteria which break down the gelatin molecule into smaller fragments. The designation *liquefying bacteria* is usually applied to these types. The bacteria produce many nitrogenous products by their action that are not produced by the other methods mentioned. These give rise to the odorous and poisonous products that are associated with the bacterial decomposition of animal tissues.

After being dried and put into the usual condition in which gelatin appears on the market, the properties of the substance are very different from those of the original collagen. The gelatin swells in cold water to many times its dry volume, and if acid is added to a hydrogen ion concentration of about N/5,000, or alkali added to a hydroxyl ion concentration of about N/100,000, the swelling is greatly increased. The swelling is least at a hydrogen ion concentration of about N/70,000. This means that if a very little acid is added to the water, the swelling of the gelatin will become less. A little more acid will result in a big increase in swelling. Large amounts result again in a drop. Small amounts of alkali will produce an increase, but large amounts result in a decrease in swelling.

Very much the same type of variation with concentration of hydrogen ions is found for the viscosity, the jelly consistency, the melting point, and the electrical conductivity. It was, in fact, the behavior of the conductivity with change in hydrogen ion concentration that led to the belief that gelatin forms salts. In the presence of acids, as hydrochloric, the gelatin appears to form salts, as gelatin chloride. In the presence of alkalies, as sodium hydroxide, the gelatin forms salts of the type sodium gelatin. In the former the gelatin is positively charged, forming cations. In the latter it is negatively charged, forming anions. At some

(Continued on page 48)

Send In Your Inquiry About Gelatin

THIS series of articles by Dr. Bogue is intended to present a foundation for a thorough understanding of the subject of Gelatin. We would be glad to receive inquiries regarding any phase of this subject; any points mentioned in these articles which are not clear will be explained and every effort will be made to give our readers the benefit of the most advanced thought and research work on gelatin as applied to candy making, also an exchange of practical information and experiences between practical men of our industry.

Send in your questions and problems—write up your way of handling gelatin which has proven successful and satisfactory. Let's thrash out this subject at the Roundtable.—
Editor.



Chocolate Dipping and Cooling Department with Conditioned Air Ducts Concealed Above False Ceiling

Refrigeration and Air Conditioning and its Application to the Candy Industry

The first of a series of articles

by **A. W. Lissauer**
Refrigerating Engineer

The problem of maintaining an ideal temperature with proper ventilation and of keeping the factory wheels turning at a profit during the summer months as well as during the balance of the year has been largely solved by the development of the science of air conditioning and temperature control which, by the way, is a very interesting evolution.

Mr. Lissauer has treated this series impartially and comprehensively. However, the subject of refrigeration is such an inexhaustible one that we expect our readers to submit their questions and special individual problems in temperature control—installation and operation—and give us opportunity to make this series of articles most valuable to every individual reader of THE CANDY MANUFACTURER.

It is the purpose of this first article to call the attention of the candy industry as a whole to the purpose of refrigeration and how it functions in the efficient operation of a candy and chocolate factory.—EDITOR.

Introduction

THE saying that there is nothing new under the sun has its exception in the science of refrigeration. It may be true that formulas, materials, methods of handling and the fundamental processes of candy making have come to us with the experience of centuries behind them, but this is not true of refrigeration, which took on its most modern developments within the memories of some of the older confectioners in your industry. It is the purpose of this article to call the attention of the candy industry as a whole to the purpose of refrigeration and how it functions in the efficient operation of a candy and chocolate factory.

I cannot lay claim to the distinction of being an expert in the manufacture of candy, but I am writing only in the light of my experience as an engineer who has had, perforce, to learn of the problems of the candy industry in an endeavor to adapt the known physical laws and the apparatus now on the market to the solution of the refrigeration problems of the manufacturing confectioner. The conclusion to which I have come by reason of that experience, is that refrigeration is an all-important item in the manufacture of confectionery at a profit. Without it, the factory is only partially efficient, and the possible profits are only a portion of those which can be realized if the yearly

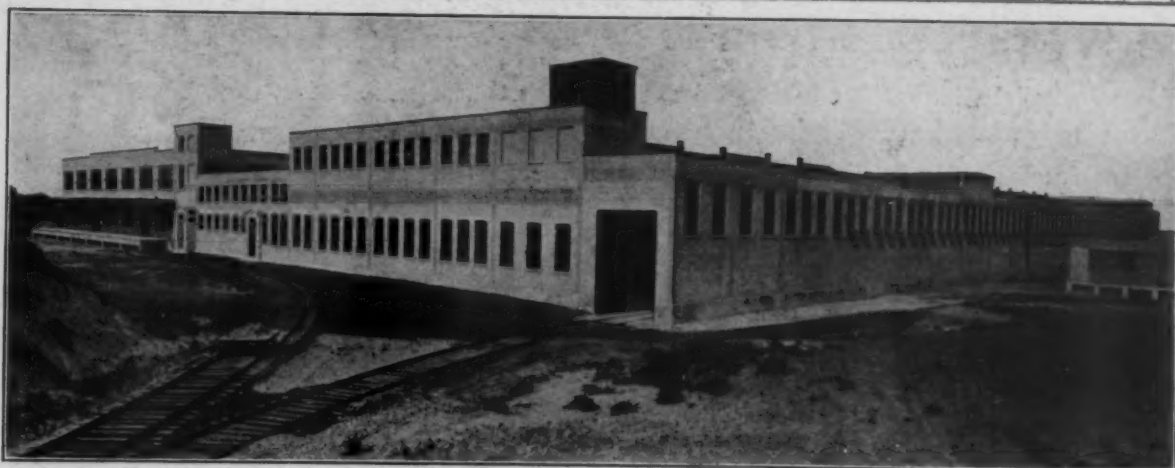
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"U. S. GEL"



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A black and white photograph of a historical industrial factory interior. Five workers, mostly women in long white dresses and caps, are operating large machinery. One worker is seated on the left, while others stand or sit at workstations. Shelves with boxes are visible in the background.

SCHRAFFT SYSTEM—COOLING. When goods, is placed in the machine it discharges motor, blower and driving mechanism to machine. Here it is raised by an elevator to another series of elevators, which again minutes in this manner through the cold the packing tables and passes between packed.

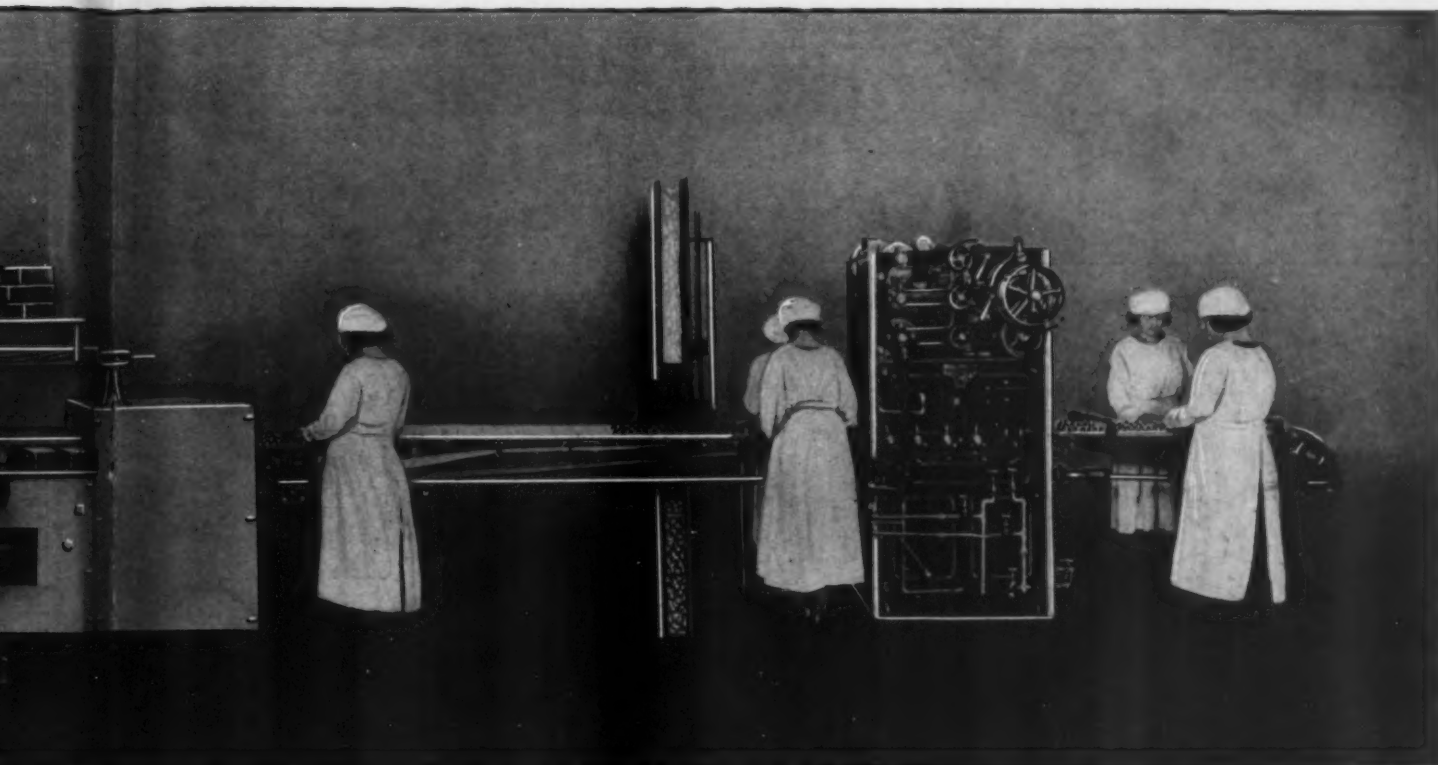
NATIONAL EQUIPMENT CO.

**Largest Manufacturer of C
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Schrafft System

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COOLING. When the tray, containing the paper of machine it descends, whence it is carried under the mechanism to about two-thirds the length of the by an elevating device, kicked over one tray length ors, which again lower it. After traveling for 23 ough the cold air, it is then raised to a level with asses between the latter, cooled and ready to be

SCHRAFFT SYSTEM—PACKING. An endless conveyor belt is provided on the top, upon which full boxes may be placed for transporting them to the end of the machine; this avoids the necessity of climbing between machines to collect the filled boxes, and enables the machines to be placed close together. In other words, one for each Enrober. On top of the conveyor is a stationary shelf for holding empty boxes, paper and cardboards. The trays are removable, allowing for the easy transfer of the plaque papers. The machine is sold either with or without the conveyor delivery.

for Candy News, our monthly publication to manufacturers.

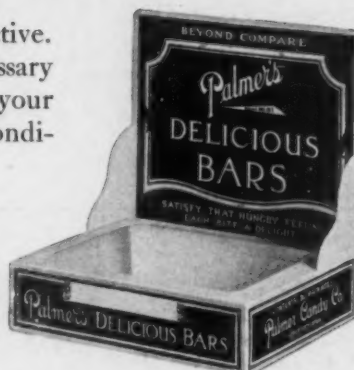
Manufacturer of Candy and Chocolate
Machinery in the World.

SPRINGFIELD, MASS., U. S. A.



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Are exceptionally attractive. They have the necessary strength to deliver your product in salable condition.



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If you now use White Patent Coated or Bleached Manila "Individual" or "Display" cartons, let us quote when next in the market. We make our own box-boards and have unsurpassed facilities for carton manufacture. We specialize in long runs of printed or plain folding cartons.

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Emil Pick's Column

TRINIDAD COCOA is divided into the following classes: Fine Estates, Mixed Estates, Good Ordinary and Clayed Chinese Cocoa (Coolie Cocoa).

Trinidad is one of the most popular cocoas, rich in butter and having a good flavor. It ought to break up from cinnamon color to dark brown, and in appearance is rather a bold, flat bean.

The Fine Estates and Mixed Estates are the best grades, and may be readily purchased to arrive from reliable importers.

The Ordinary Trinidad lacks to some degree the character of the Estate grades, but it is a very valuable cocoa when the Trinidad flavor is required, without having to pay quite so much for it. The "Coolie" Cocoa is rarely a good purchase, except at a very low figure, as the heavy clay entails a very large loss in weight, and the break is nothing extra. All Trinidads should contain no defect.

This is an important grade of cocoa to manufacturers of confectionery and cocoa powder, and is used in making high grade confectionery.

GRENADA COCOA is a West India Island cocoa which can be used in place of Trinidad at times. Fine Estate Grenada is on a parity with Fine Estate Trinidad, but the Ordinary Grenada is inferior to the Ordinary Trinidad.

This practically completes the series of articles on Cocoa Beans, with the exception of such grades as Java, St. Lucian, Dominican and St. Kitts; in fact, all West India Island cocoas. Savanilla and Cacao are also cocoas that have not been written about, but they have not come to this market for a number of years. These two last named grades are used locally, and in some cases are being shipped to Spain. They can be substituted, and have been substituted for Maracaibo.

Shall be glad to answer any questions on any phase of this subject. Please do not hesitate to submit your problems and questions.

To Cocoa and Chocolate Manufacturers

The above article concludes the series of articles on Cocoa Beans and the various ports from which they come, having described from our own experience the value of these cocoas.

There is one thing we would now like to call to the attention of the trade, and that is we are trying to establish among the manufacturers and importers a standard form of contract, which eventually will have

to come into our market. By this we mean a standard form of contract that protects both buyer and seller, and the sooner this is established the better for the trade in general. We would like to have the opinion of the various manufacturers on this suggestion.

The following is an outline of the idea:

1st—A standard form as to quality.

2nd—Arbitration.

3rd—No arbitrations, but cocoa to be taken as a delivery and a fair allowance to be made.

4th—A standard Board of Arbitration to consist of five—two manufacturers, two importers and one broker—or the Board of Arbitration to be five men connected with the trade who have had a number of years' experience in the handling of all grades of cocoa.

The sooner that some such plan is established the better for the trade in general; there are a number of new concerns just starting, and it will be a protection to them as well as to the old concerns. There are so many conditions, questions of quality and technicalities of delivery that this is a good proposition for manufacturers and importers, as well as dealers.

Imported Nut Situation

JORDANS: The approach of the hot season brings with it a heavy decrease of Shelled Nut shipments from abroad. In the meantime, some varieties of goods are practically exhausted, while others are held in shell for later cracking. Three, four, five, six and seven crown Jordans are still obtainable here, but in small supply. No more of the large sizes, however, are offered from source.

VALENCIAS: Three crowns, all brands, have advanced quite materially as the selections have narrowed down, bulls being exhausted. Two and four crowns are obtainable in a small way on the other side, but the hazard of a heated trip from the south of Spain is not very inviting to the importer.

ALICANTES: Five and six crowns are firm, with all holdings now in cold storage and probably no more to be brought over after this month until the fall season.

MARCONAS: These goods are growing in popularity, with the result that the spot supply has been short. Some of these goods are afloat, and it is hoped that they will not be affected by the heat while at sea.

AVOLAS: The demand for the large and extra large sizes has more or less quieted down, and the small and medium have little or no market.

DUCHESS: Five crowns, the extra large size, are identified by the guaranteed count running from nineteen to twenty to the ounce, which distinguishes them from other so-called Duchesses.

ETNAS: These Dipping Almonds from responsible houses are held firm. The same can be said of P & G Sicily Almonds and Bari Almonds. There are no heavy stocks of these goods here, as the risk of carrying too many bag goods in cold storage ties up capital. Heavy stocks of this character do not, as a rule, admit of quick turnovers.

FILBERTS: Barcelonas are stronger. The extremes of heat and cold in the Barcelona region; that is, in the growing districts, have had a tendency to adversely affect the flowering crop. Levante Filberts, selected, are steady. There will probably be a further advance in both varieties of Filberts in the early fall.

WALNUTS: Genuine, native French Walnuts of extra quality are very hard to obtain now, these goods having been pretty well sold up. Some packers are unable to place any more of the genuine goods. The swindlers who operated in France this year, packing exotic walnuts and sending them out as native goods, have been pretty fairly rounded up, and the French Walnut Protective Association has taken up the matter with the Union des Syndicats Agricoles of France, and the association, working in the interest of protection to native Shelled Nuts and other French fruits, is now making inquiries of the Dried Fruit Exchange of New York with the view of gathering information from the importers here regarding shipments of inferior walnuts which were sold as Bordeaux and Chaberte. The campaign of misrepresentation which has been carried on in walnuts has had its good affect, inasmuch as it has brought out in bold relief the really honest shippers who refused to be party to the swindle. We cannot mention names here, but by a process of elimination the names of these honest shippers will become more and more familiar with each coming season.

We need look for no material shipments of shelled nuts from the other side now until the advent of autumn. Fair stocks are carried in cold storage by the importers and easily sufficient to meet the midsummer demand. The tariff question has given place to uncertainty as to date of its enactment, and in the meantime, as long as the importing of shelled nuts will be inactive the matter ceases to give any apprehension at the present.

Refrigeration and Air Conditioning

(Continued from page 34)

period of operation is twelve months. Furthermore, the quality of the finished product, regardless of the quality of the raw materials and good workmanship, cannot be standardized unless the weather in the plant is controlled.

The Problems of Temperature Control and the Departments Which Require Refrigeration

ALMOST every department of a candy factory can be benefited by the application of refrigeration.

It is universally admitted that the chocolate dipping and packing departments require refrigeration. However, other departments in the chocolate candy plant will benefit greatly by some application of refrigeration. For instance, the storage rooms for the raw materials, the room at the hot ends of the enrobers, the starch room where the centers are cast and dried, the storage room for the finished product, all those departments when at the mercy of the weather suffer when the weather is not favorable and throw a burden on the production program and manufacturing costs which is very apt to be directly responsible for red ink on the ledger and a sacrifice of a competitive advantage.

So also the hard candy department where the product tends to absorb moisture from the air in the summer time, giving rise to that bugbear, "graining," which until recent years was thought to be a hazard of the candy business that could be minimized only by a variation in

cooking temperature or a change in materials. However, there is another factor in the elimination of this trouble—the proper cooling of the candy under conditions which will prohibit the absorption of moisture and the proper caring for the finished product, so that all the good effects of proper treatment will not be lost.

It can be seen from the above mere outline that refrigeration is a question which affects the candy manufacturer vitally. Furthermore, it is obvious that, because of the need not only for low temperatures but for low humidities, the application is somewhat more complicated, at least in principle, than the mere use of cold pipes connected up with an ammonia compressor. The more deeply one goes into this problem, the more it is realized that satisfactory results from refrigeration is dependent on its proper application.

The summer being the hazardous period of the year, it was formerly thought that temperature was the only factor with which to contend. It was not realized until recently that candy, like many other products, absorb moisture, depending upon the moisture which is present in the air. The leaders in the refrigeration industry have, consequently, directed their efforts towards this dual role, so that one item might be solved together with the other. Progressive candy manufacturers have awakened to the same realization, and the fact that many are now turning out goods of the same high quality, winter and summer, is evidence that refrigeration and air conditioning is appreciated among the progressive candy men, as well as among the thinking manufacturers in other industries.

The History of Refrigeration as Applied to the Candy Industry

THE first attempt at a solution of this problem was the use of melting ice in the chocolate packing department. I have seen many small factories using hand labor exclusively which still cling to this first step. The small packing room is equipped with an "ice box" containing a disc fan, blowing air over trays holding crushed ice. The air is cooled, but at the same time, of course, picks up an enormous quantity of moisture, together with all of the dirt and grime which was originally in the air. This cool, damp air is blown into the packing room and certainly reduces its temperature, at least in moderately warm weather, sufficiently low to harden the chocolate coatings. This is a crude method, as all first steps must be, and expensive because the contact of the air with the ice must of necessity be poor. The ice is constantly at a temperature of 32 degrees F. and has an exposed surface which is exceedingly limited. In many cases, the manufacturer has the choice, either of spending an excessive amount of money not only for the right size of ice box, for the ice which is melted and for the

labor in crushing and spreading it on the trays, or else of being content with working only a few days during the summer and shutting down when the weather is very hot and humid.

The Ammonia System

Later it was realized that the ammonia system was more or less perfected through use in other industries, and offered a means for continuous refrigeration with an expenditure of money for power as against the expenditure for ice and labor. This refrigeration effect, due to the vaporization of liquid ammonia, could be applied through the medium of pipes. What more logical step, then, to buy an ammonia compressor and condenser and install vaporizing coils in the packing room, to reduce the temperature? This was done in almost all of the then modern plants. They were equipped with direct expansion coils, hung on the ceiling or on the side walls of the room, near the ceiling, so that the air in the room would rise to them, be cooled, and then drop down, forming a zone of cold air around the packing tables. Soon it

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A Typical Caramel Packing Room Adequately Equipped With Air Conditioning System

was found, however, that the moisture in the air collected on the cold pipes and formed ice; then, no matter how cold the refrigerating medium was inside the pipes, the ice on the outside, the cooling surface, was about at a temperature of 32 degrees F. with a corresponding effect on the temperature of the room. Then dripping took place with practically super-saturated air in the room, and the same troubles due to the old ice box were again present.

The alternative was to run the refrigerating medium inside the pipes at a temperature above the freezing point of water vapor. This worked all right, but it meant that the surface of the cold pipes had to be increased accordingly, with a large increase in first cost of the installation; and then nothing was gained except a temperature result. All of the air in the room remained unchanged, the moisture from the goods accumulated, there was no ventilation for the workers and the atmosphere in the department at the end of a day's work was practically impossible to work in. Because of the excessive moisture and practically no evaporation, the chocolates would turn grey, dull and lifeless, although they hardened due to the low temperature. Very often also, the effect of this high humidity condition was not felt until after the goods went into the warehouse to be stored, when the excess moisture which they still contained would start to evaporate and carry with it the oils.

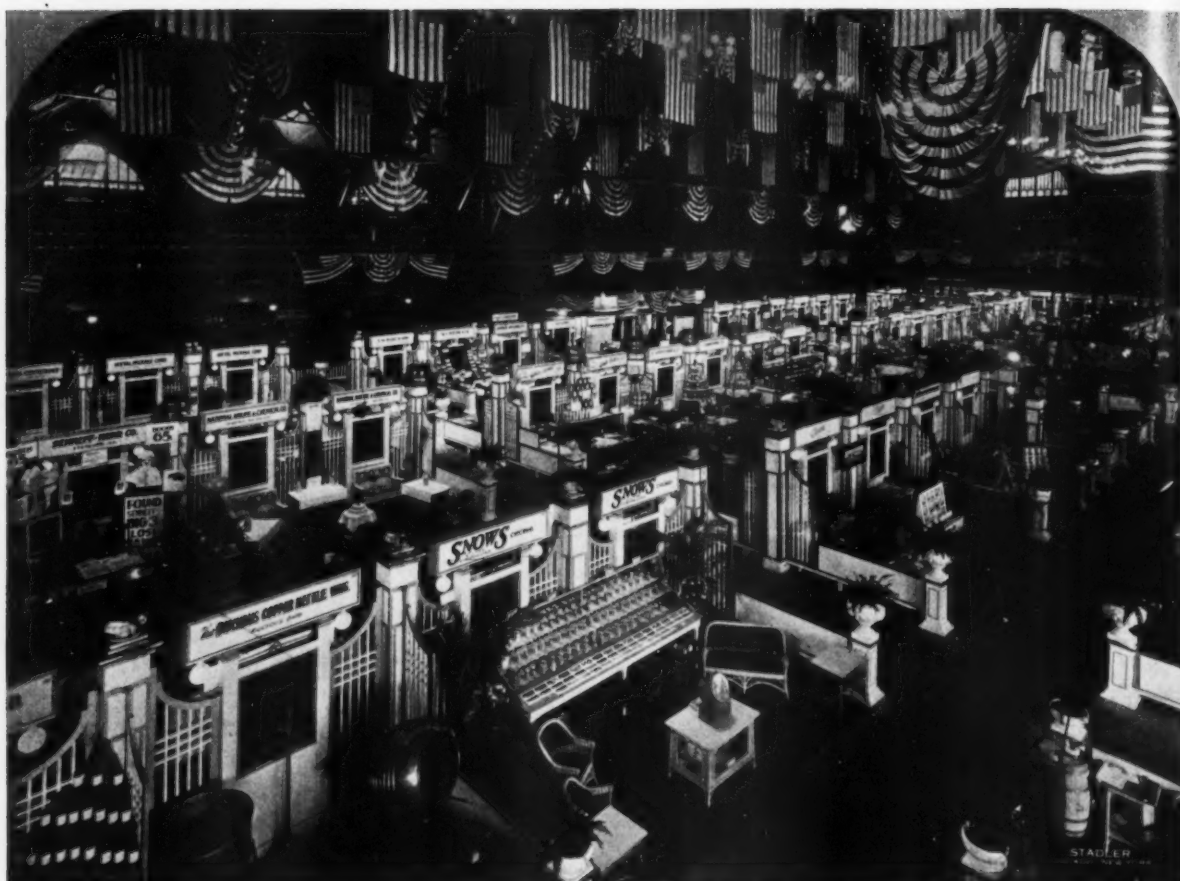
Refrigeration with Ventilation

The next step towards perfection was in air conditioning and was obviously one which would succeed in giving some ventilation for the help, at the same time trying to eliminate some of the excess moisture. Again reverting to the

old ice box ideas, we can see that the path indicated was one whereby air from the outside the plant would be blown across cold pipes, thereby introducing fresh, cold air into the packing department. However, the disadvantages were many.

For instance, as before, when the refrigerating medium is at a temperature below the freezing point of water, the moisture in the air will coat the pipes, thereby raising the temperature of the outside surface to that of ice and again militating against proper cooling. With an increase in temperature of the refrigerating medium, this drawback was overcome, but at the cost of increase in installation cost. In order to obtain continuous surface, some manufacturers installed two sets of coils (which are called Bunker Coils), so that while one was being thawed out, the other would be operating. It is true that some moisture is frozen out of the air, but not enough to make very much difference in the behavior of the goods, and certainly not in a way which could be regulated. One can see that when the moisture of the outside air became excessive, the moisture introduced by means of these bunkers must also be increased, because the capacity of these coils to freeze out moisture is practically constant. Dirt and dust, containing bacteria, of course, are blown into the packing room and if in an attempt to save refrigeration, the air is recirculated over these bunkers, the coils quickly accumulate all of the dirt and slime which the air contains, thereby further contaminating the department and making it an unwholesome and unhealthy place in which to work.

In many instances, these bunkers were flooded with water, constantly circulated over



The Second National Confectionery and Associated Industries Exposition

the pipes. This washed off a great deal of the accumulated filth. However, under those conditions, contact with the air was fairly poor and there was very little, if any, increase in cooling effect.

The Highest Development in Refrigeration

It seemed for a time that this flooded bunker coil system was the highest development in refrigeration and many manufacturers gave up their attempts to improve on it. Of very recent years, however, there has come to the forefront a method of application of refrigeration to air and through it to the various departments, which not only cooled the air to the point required to maintain the proper temperature in the departments, but also placed absolutely under the control of the operator, the amount of moisture. This is perfection, indeed!

By the use of this new application, not only is the dipping department kept under the exact conditions which make for perfect product, but also the ventilation is perfect; there is no dirt or dust, and the completed goods are given an appearance which has so far been obtained only under the most favorable weather conditions and by the use of expensive materials and hand

labor. Not only that, but all of the other departments can be placed on the same ideal basis. The starch department can contain starch with an unvarying amount of moisture, no matter how much it absorbs from the goods which are cast in it. The feeding end of the enrobers is kept, although at a high temperature, in such a way that the working people are comfortable. The storage department receives, keeps and ships a product which is the same day after day.

Nothing has been mentioned so far about the hard candy plant. This is due undoubtedly to the fact that by manipulation of the temperatures of the "cook" and variation in the mixture, all effects of the weather could be overcome, but not graining, which was recognized up to a short while ago as something which could not be avoided during certain weather conditions. Although some people have claimed to be able to overcome graining by the use of a straight cane sugar mix with cream of tartar or acids, I have never found it to be a fact. All sugar goods, whether they contain chocolate or not, or corn syrup or not, are hygroscopic, that is, they absorb moisture from the air or give it up, depending on the amount of moisture in the air. When the air is moist,



**The Chicago Coliseum in Full Dress during Convention Week
A Strikingly Beautiful Commercial Exposition**

the goods will absorb moisture and finally so much that the sugar goes partially into solution in it and recrystallizes. Moist sugar is extremely hygroscopic and readily absorbs moisture. I will grant that hard goods which are given a very high gloss with a practically impervious surface are not affected as quickly as other kinds; but nevertheless, the manufacturer of this type of goods is often faced with the necessity of storage of his product for an indefinite period, and whether the goods have a glossy surface or not, if they are stored where they come in contact with wet, hot air, they will grain, although it may take some of them a little longer time than others.

Now, in the application of the ice box, the direct expansion coils and the bunker coils, it was found very early in the game that although temperatures could be reduced, moisture was increased and far from aiding the hard candy man, such installations were a hindrance. This was undoubtedly because chocolate with its oils and fat is not nearly as hygroscopic as hard candy, so that while chocolates might stand, hard candy would not. Therefore, until the

time when this new modern application of refrigeration came into the market, the hard candy maker could do nothing except pray for good weather. Now, however, it has been found that for candy work, refrigeration can be used to take moisture out of the air in a controllable manner and also that with a smaller quantity of moisture, a higher temperature could be tolerated with benefit to the goods. In the cooling, packing and storage departments, as well as in some special lines which I will discuss later, the hard candy factory can be made as independent of the outside weather as the chocolate factory.

This, then, is the goal towards which the refrigeration industry has been working as applied to candy manufacturing—that of giving the manufacturer the kind of air in his factory which is not only the best possible for his goods, but also for the people working there and all absolutely independent of the outside weather, and the dirt and dust which it contains.

(To be continued)

Essential Oils

by M. A. Posen

Chief Chemist, Schwarz Laboratories

To Superintendents: In our April issue was published a letter received from a manufacturing confectioner, stating his problem and some questions about flavors. This article is in response to the suggestion from our subscriber that we publish an authoritative article on essential oils, not too technical, which would give the layman a satisfactory understanding of this subject and help the practical confectioner who has not had technical training to buy and use flavors more intelligently.

The same corresponding viewpoint is behind all the technical articles of this magazine. If any statement is "over your head," please write in and let us clear up the point. We will appreciate letters from superintendents and practical men of our industry giving their comment on the articles published and a few suggestions of subjects to be included in our editorial program this year.—EDITOR.

ESSENTIAL or volatile oils, so called to distinguish them from fixed oils or fats, are found in various parts of plants and usually constitute the odorous principles. They exist in the plant as such, or are produced by the chemical reaction of certain constituents when brought into contact with water. Most plants contain less than 5 per cent oil, some only traces, while cloves contain up to 20 per cent. A few essential oils are obtained from the animal kingdom.

Methods of Extraction

Some essential oils may be extracted from the raw materials by steam distillation. Steam is passed through layers of the finely divided flowers, seeds, woods, herbs or barks, and the vapors are condensed and collected. The volatile oils pass over with steam, are condensed and separate out from the condensed water in the receiving vessels. Among the oils produced by steam distillation are anise, cassia, clove, peppermint, and wintergreen. Oils produced by steam distillation do not possess the exact odor of the raw material from which they are obtained for the reason that during distillation, chemical changes occur which variously affect the chemical compounds which produce the characteristic odors of the plants. Some oils are produced by pressing the rinds of the fruit. The peel is worked until the oil cells are crushed and the oil is forced out and absorbed by sponges or other absorbents. The oil is then squeezed out of the absorbent and filtered. This method produces the most fragrant oils, because there are very few essential oils whose aroma is not harmed by heat. The finest oils of lemon, orange and lime are produced by expression.

Other volatile oils are so easily decomposed by heat, or exist in such small proportion in the plant, that expression is impracticable. In

such instances, the oils are extracted by volatile solvents, such as petroleum ether, chloroform, carbon tetrachloride, or purified carbon bisulphide. The solvent passes down through layers of raw material and dissolves out the oils. The solvent is distilled off at a low temperature, and the oil remains behind.

Four Classes of Essential Oils

Chemically, the essential oils may conveniently be grouped into four classes:

(1) Terpenes or hydrocarbons. The oils consist mainly of one or more hydrocarbons, compounds containing carbon and hydrogen only, of the formula C_nH_m , and known as terpenes. The oils of lemon and orange are of this type.

(2) Oxygenated oils. These contain carbon, hydrogen and oxygen. Oil of cinnamon is an example.

(3) Sulphurated oils. Oils containing sulphur compounds, such as the volatile oil of mustard.

(4) Nitrogenated oils. These comprise a small class which contain hydroganic acid, such as the true oil of bitter almonds. Ordinarily, nitrogen is not a constituent of essential oils.

The above classification is given solely for convenience. Much research has been done on the chemistry of essential oils and a detailed classification on the basis of the laboratory findings is beyond the scope of this paper.

It may be stated, however, that the odor, and consequently, the flavoring value of every essential oil is due to the presence therein of one or more definite chemical compounds. In other words, there is a definite and striking relation between the chemical composition of an oil and its odor. It is this knowledge that has made possible the remarkable development in the discovery of synthetic or artificial flavors. Often,

the synthetic flavor has the identical chemical composition of the odorous compound naturally present in the plant.

Physical Properties of Essential Oils

The physical properties of the essential oils are interesting and important. Most oils when fresh and pure, are colorless or can be made so by redistilling. Exposure to air, however, soon causes them to assume various colors, ranging from yellow to blue. The odor is the most characteristic feature, and is greatly influenced usually unfavorably, by exposure to air. The taste varies, as much as the odor, some being sweet, others hot, pungent, caustic or mild. Most essential oils are lighter than water, although a few, such as oil of cassia and oil of wintergreen, are heavier. The oils vaporize to some extent at room temperature, and completely on heating. If sufficient heat is applied they burn. Essential oils are only very slightly soluble in water, although sufficiently so to impart their characteristic odors. The volatile oils dissolve readily in alcohol, ether, chloroform, glacial acetic acid, petroleum, benzin, and other organic solvents. Conversely, essential oils are good solvents for fixed oils, fats, resins, camphor, sulphur and similar substances.

Exposure to light and air harmfully affects the quality of essential oils and eventually destroys their fragrance. The oils may thicken and resinify, ozone may be developed, or they may throw down crystalline deposits. Consequently, essential oils should be kept in tightly stoppered, colored glass, or light-proof containers.

Determining the Quality

Manufacturers, purchasing agents and dealers often ask if there is no simple test for determining the quality of an essential oil. Some of the very crude, and consequently, rare types of adulteration can readily be detected. The presence of a *fixed* oil or fat is apparent if some of the oil is dropped on filter paper, and placed in a warm place. A pure essential oil evaporates completely, leaving practically no stain on the paper. If a fat or fixed oil is present, a greasy stain remains on the paper, even on heating. To detect alcohol, shake a definite volume of the mixed sample with a definite volume of glycerin or water. The volume of oil will *decrease*, and the volume of glycerin or water will *increase* approximately in proportion to the alcohol present. This test is not quantitative owing to the slight solubility of essential oils in alcohol-water mixtures.

Most types of adulteration of essential oils as practiced today, are much more complex and ingenious than the crude examples given above, and unfortunately, there is no quick and easy test for detecting them. This can be done only by submitting the sample to a reputable laboratory, whose personnel is trained and experienced in modern analytical methods of essen-

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tial oil analysis. Only by such means can the purchaser properly protect his interests.

Terpeneless and Sesquiterpeneless Oils

Terpeneless and sesquiterpeneless oils have arisen because of the poor keeping qualities of terpene containing oils, which quickly develop a "turpentiney" odor, and also because they require less alcohol for solution. Terpeneless oils (lemon, orange, lime) are oils from which most of the terpenes have been removed. Commercial terpeneless oils contain more or less sesquiterpenes, which are more difficult to remove. The sesquiterpeneless oils are the highest-type of terpeneless oils and are practically free from all terpenes. The terpeneless and sesquiterpeneless oils keep fragrant much longer than the untreated oil and their flavors are quite satisfactory. They dissolve in alcohol of much lower proof than the untreated oils. The sesquiterpeneless oils have a much stronger flavoring power than the ordinary terpeneless oils, and, of course, their cost is much greater. They are more stable than the regular terpeneless oils.

Pointers in Purchasing

The question of whether to use untreated or terpeneless oils must be decided by each manufacturer in accordance with his individual conditions. If alcohol is readily obtainable at a reasonable cost, and the turnover of finished product is rapid, the untreated oil is satisfactory. Under present conditions, with alcohol expensive and difficult to obtain, the terpeneless oils will appeal because of their solubility in dilute alcohol. Their stability is another point in their favor. The sesquiterpeneless oils, because of their greater flavoring strength, excellent keeping qualities and solubility in dilute alcohol make the highest type of terpeneless extracts, but their relatively high cost must be considered.

Points to remember in purchasing essential oils: Note carefully the odor, color, and appearance, in comparison with a sample of known purity. If abnormal, set aside for further investigation. Avoid a turpentine-like odor. Try the grease spot test for fixed oil and the test for alcohol. If still in doubt as to the quality of the oil, submit it to a reputable chemist for analysis.

A sense of humor is mental radium; it enables you to see through everything—even yourself; it cures you of everything, even your vanity; it lights up everything—even this dull old world.

"Any man is young who comes to the recognition of new ability in himself."—Theodore Vail.



The President's Address

(Continued from page 25)

thought it unwise at that time to attempt to raise the amount suggested. Ever since the Springfield meeting there has been a desire on the part of many of our members to start some kind of publicity in our industry. The matter of a slogan was considered, and at the meeting of the Executive Committee, held in Chicago last December, this plan was recommended and the slogan selected, and after much persuasion we finally succeeded in securing as chairman of the Publicity Committee, Mr. V. L. Price, which we felt, assured the success of the adoption and use of the slogan.

In order to get the display cards prepared and have the different state organizations and other affiliated organization approve the slogan, there was necessarily some delay, and we thought it unwise to attempt to launch the movement before bringing it before the convention and getting your approval, endorsement and co-operation.

Mr. Price will tell us tomorrow of the work of his committee and after he has explained his plans and outlined the benefits to be derived therefrom, I am sure we will all get behind him and his committee and help make this the greatest benefit to our industry.

Excise Tax

During the year your officers and Executive Committee have had many problems to consider. When we came into office we found Mr. Hubert B. Fuller, who had been employed by our predecessors, doing an excellent work on the excise tax. For months he labored arduously and was ably assisted by members of the Executive Committee and other members of our association.

At one time, as you will remember, it seemed almost certain we would have a tax of 3 per cent or possibly 5 per cent on the lower price candy, and 10 per cent on candies wholesaling for 40c and over. Your Executive Committee were unanimously opposed to a discriminatory tax of any nature. At this juncture it seemed unwise to continue the fight to have the tax entirely removed, but decided to put all their efforts against a discriminatory tax and in favor of a uniform tax of 3 per cent, and on November 7th the Senate Committee reported favorably on a uniform 3 per cent tax, effective January 1st, 1922.

I believe we should plan at an early date to have this tax entirely removed, as it seems unjust for our industry to be thus discriminated against. I am convinced, however, that the most effective work can be done by our own members, and I believe there are enough of them who, when called on, will give their time cheerfully for the benefit of our industry.

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Gelatin—Constitution and Properties

(Continued from page 33)

point between these two conditions is a point of electron-neutrality at which the gelatin forms no salt of any kind, and is unionized. This condition, known as the isoelectric point, is the condition of minimum swelling, viscosity, etc. The turbidity is highest at this point, and sometimes otherwise clear products will become opaque at the isoelectric point. The foam is highest when the gelatin is in this condition, and where foam is desired, as in the preparation of marshmallows, it may be found expedient to intentionally bring the material to the isoelectric condition. Foam is also increased by hydrolysis to the maximum proteose content.

Upon cooling a solution of pure gelatin it will form a firm jelly if the concentration is 1 per cent or higher. The consistency of this jelly will vary with the concentration, the hydrogen ion concentration, the temperature, and the purity of the material. Even impurities as salts in the water in which the gelatin is dissolved may affect the jelly. Many gelatins are graded upon the relative strength which will be developed by the samples, as compared with so-called standard gelatins.

Protective Action

One of the most interesting properties possessed by gelatin is that included by the term "protective action." Some colloids, such as casein, are precipitated by very small amounts of electrolytes, as an acid. Other colloids, such as gelatin, are not so affected, and have moreover the extraordinary power of preventing the precipitation of sensitive colloids. So if a little gelatin is added to casein, much more acid must be added to effect coagulation than if no gelatin is added. More gelatin will necessitate still greater amounts of acid, etc.

This protective action is not confined to the influence of one colloid on another, but includes the influence of a colloid on non-colloidal precipitates or crystals. Ordinary precipitations that are brought about between inorganic salt solutions come down more slowly, and are much more finely dispersed when gelatin is present than normally. The development of spiny crystals of water in ice cream is retarded or prevented by gelatin.

It is probable that this protective action is due to an absorption of gelatin by the fine granules of just precipitated material. The gelatin apparently forms a thin film around these granules and so prevents them from increasing in size by coalescence. Gelatin has often been added to the milk fed to infants to prevent the casein from forming hard, indigestible lumps in the stomach. Here the gelatin takes the place of the protective protein *lactalbumin*, which occurs in all milk, but to a much greater extent in woman's than in cow's milk.

Gelatin an Emulsifying Agent

The value of gelatin as an emulsifying agent is also probably explainable in the same way. When an oil and a watery solution are to be emulsified, it is well known that, in order that this be stable, a third substance, known as an emulsifying agent, must be present. Gelatin, egg albumin and gums are among the favorites used. The colloid probably here, as in the case above, forms thin films around the small droplets of oil, and so prevents their coalescence, which would result in a breaking of the emulsion.

(To be continued)

Next Month's Article—

"Testing and Grading Gelatin."

Does Vacation Pay?

Does it pay to increase your creative power and originality?

Does it pay to get a firmer grip on your business or profession?

Does it pay to regain your lost confidence by up-building your health?

With a fresh, vigorous brain serve you better than a fagged, jaded one?

Does it pay to put iron into the blood and to absorb granite strength from the everlasting hills?

Does it pay to get rid of some of the narrow prejudices, hatreds, and jealousies that are encouraged by the strenuous city life?

Does it pay to develop our powers of observation; to learn to read "books in the running brooks, sermons in stones, and good in everything?"

Does it pay to put beauty into the life, to absorb serenity and poise from the sweet music of the waters and the thousand voices in nature?

Does it pay to be free, for a time, from the petty annoyances that vex, hinder, and exasperate; to get out of ruts and the old beaten tracks and take in a stock of brand-new ideas?

Does it pay to get away from the hot bricks and mortar of the city, to become rejuvenated and refreshed by breathing the untainted and invigorating air of the country?

Does it pay the hard-worked, nerve-racked, desk-bound man to lock his business cares in his office or store and be free once more; to exchange exhausted and irritable nerves for sound, healthy ones which will carry pleasurable sensations instead of rasping ones?

Does it pay to save five per cent of your income by economizing on your vacation this year and break down next year from the continued strain and be obliged to pay fifty per cent for doctor's bills, besides the time lost in enforced idleness?

—Success Nuggets.



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The Sugar Situation



by Dwight O. Palmer

ASK OUR SUGAR EDITOR!—Are you reading Mr. Palmer's report on "The Sugar Situation" each month regularly?

If not you are missing something valuable—a boiled-down, authoritative review and forecast of the sugar markets.

Mr. Palmer is well qualified as an expert on the sugar situation, having specialized for years in representing foreign and domestic sugar manufacturers and refiners. Our readers are at liberty to consult this department. Communicate through our publishing office or direct to Mr. Palmer at 160 Pearl street, New York City.—EDITOR.

SINCE our last review, sugar has experienced quite a sensational rise of $\frac{3}{4}$ c per pound for raw sugar and 60 points per pound for refined. A moderate advance in prices was expected as we entered the period of heaviest buying for summer requirements, but the rapid and important advance was unexpected and was the result of sudden important developments in the world sugar situation, which have placed almost an entirely strong aspect to the situation, directly the reverse of what it appeared to be a few weeks ago, at least for the time being and possibly for the balance of the year. Sugar is noted for its unknown future possibilities and always an interesting phase of sugar is that the unexpected is always apt to happen.

At the time of our last review the sugar market was easy and had just shown a decline of $\frac{1}{4}$ c per pound in raw sugars from 4.11c duty paid to 3.98c. The market remained at this level until May 12th, then slowly developing strength on normal demand and on that date recorded 4.04c, duty paid, for raws. Domestic refined prices remained about unchanged with only moderate demand, while principal firmness developed in raws and export refined. The week of May 22nd showed a very considerable increase in business in raw sugars to the U. S. and Europe and export refined to Europe, brought about by the unfavorable reports of the coming European beet crop and the removal of restrictions on the importation of sugar into Germany, this latter country entering the American market immediately for raw and refined supplies. The demand from European countries increased daily, sellers, particularly Cubans, taking full advantage of the in-

creasing strong situation, with the result that prices have advanced as above stated.

The strength in the situation is further augmented by a close, actual analysis of the Cuban situation, which discloses at the present time beyond a doubt that Cuba sugars available for the balance of the year unsold 1,500,000 tons for European and U. S. requirements, so large has been the movement of Cuba sugar this year. This figure takes into consideration the increased estimate of the Cuba crop by Messrs. Willett & Gray for statistical purposes to 3,750,000 tons. But thirty-seven Centrals are left working. The total production of all Centrals up to June 3rd was 3,468,078 tons. Cuba has exported over 3,000,000 tons during the first five months of this year. With but 1,500,000 tons available from Cuba for Europe and the U. S. for the balance of the year, authorities are compelled to acknowledge that with a continuance of the demand for sugar, which has prevailed thus far this year, there will be little if any carry-over in Cuba at the end of the year and could very likely result in a gradual firming market throughout the year.

All bearish features advanced a few weeks ago seem to have been completely eliminated and nothing short of very important news favorable to a material increase in the European beet crop, or a material decrease in European requirements from Cuba and the U. S. by reason of this or European requirements being filled by other producing countries such as Java, Mauritius, Brazil and Peru will cause any recession in prices in the U. S. market to any extent. It is a question how high Cuban and U. S. prices can go without meeting serious competition from the foregoing countries and

just how far these countries can supply the ever-increasing demand from countries needing sugar this year.

European Demand

As regards Germany, it is variously estimated that she will require a total of 200/400,000 tons of sugar from outside sources. Like all European beet countries the crop is several weeks delayed owing to lack of rains and should there be immediate rains the crop cannot be hastened to its normal commencement date.

As a forerunner of another possibility, Russia has purchased one cargo of Cuba sugar for shipment to Reval, payment being made in Russian gold through a Dutch syndicate. More sugar may be sold to Russian than we can now retalize.

France will require outside supplies for a longer period than originally expected. General poor beet crop conditions prevailing there also.

Czecho-Slovakia also reports very poor outlook for the coming crop.

England is a continuous heavy buyer of Cubas and American and Canadian refined throughout the year unless more favorable opportunities offer from other producing countries. At present England is benefiting by the favorable rise in Sterling.

Other countries are continually in the U. S. market for supplies as evidenced by monthly exports of refined sugar.

Cuba has worked itself into a very strong position and is taking full advantage of every move.

Java reports heavy sales of raws to Japan and scattered sales of white sugars June/August shipments to Europe, England, India and Levant.

All this indicates the likelihood of a continued good demand from Europe and other countries and it would be well for all buyers to consider seriously the possibilities in the situation for the balance of the year. Of course, we have limited usual sources of supply other than Cuba before the end of the year, but if evidence appears of a likely shortage of supplies, however small, advantage will be taken to advance prices, thereby attracting sugars from other parts of the globe.

All these features demand our attention as they have almost entire influence over our home situation and while it would seem at times that domestic refined prices are advanced unnecessarily, the underlying important happenings are directly responsible, and domestic buyers at times are slow to take advantage of the situation, not fully realizing the importance of events. A semi-speculative interest also gives additional support to the market and becomes more prominent as prices advance.

The year has shown an unprecedented movement of sugar and has continued to a point

where we may expect prices to be maintained throughout the year and higher levels for 1923. Stocks in all U. S. refining ports and all Cuban shipping ports at latest uneven dates are reported as 1,333,088 tons or a decrease from last year of 362,618 tons.

Refined sugar prices are practically on a 6c basis for Atlantic seaboard with further advances expected. West coast cane refined is practically on a 6.40c basis. Western beet firm at 5.90c. Of interest to domestic manufacturers is the fact that prices have continued to advance in spite of adverse opinion, and it is within the possibilities that further material advances are in store for the immediate future. Europe seems not to have caught up with the U. S. as yet, but renewed buying interest is expected at any moment. Sugar in all positions is firm and no recession in prices is apparent at present.

Canada is also participating in the increased demand for sugar and is quite an important factor in securing her raw sugar supplies, as well as selling heavily for export to Europe. The situation there is strong and closely follows the trend of world happening in sugar as reflected in the New York sugar market.

Another important feature is the prospect of a very good fruit crop and a canning season of important proportions, present indications being that the canning volume will be very large with consequent sugar requirements.

As a further indication of continued activity in sugar it may be noted that the trading in raw sugar futures on the New York Coffee and Sugar Exchange is now averaging 50,000 tons per day.

There is hardly a feature in the sugar situation that is not of utmost importance to the domestic buyer of sugar no matter where or how situated and he cannot give too much attention to developments in this most important commodity. The time thus spent will well repay him if he takes full advantage of facts thus learned and acts in accordance with his best judgment based upon this knowledge. The sugar situation should be of more than passing interest this year and next.

The New York Sugar Market

June 10th, 1922.

The raw sugar market continues strong with a large volume of business doing daily. Cubas are firm at 3c C. & F. or 4.61c, duty paid, 2.90c to 2.96c F. O. B. Cuba, whilst some have been sold as high as 3c F. O. B. Cuba and 3 1/16c C. & F. New Orleans. Duty free sugars are 4 1/2c delivered and full duty sugars are selling at 3c C. I. F. Canadian ports. Cubas in England are offered at 16/ C. I. F. with buyers at 15/6d. per cwt. There are further moderate sellers at last prices, which to some might show a sign of easing in prices, but the demand is

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A Chocolate Factory
devoted to the
exclusive manufacture of
High Grade Chocolate
Coatings and Liquors

*Samples and Prices
sent on request*

FORTUNE PRODUCTS CO.
416-22 South Desplaines Street
CHICAGO

sufficiently firm to care for all sugars offering at present. Cuban sugars make the market and are in an exceptionally strong position at this time.

Refined sugar prices are following the course of raws in response to the demand for raws and export refined. Export refined prices are now generally on 4.25c F. A. S. basis for July and August delivery from refiners and the same price for June delivery from second hands. Buyers' views seem to be about 4.20c F. A. S. with a large buying interest at 4.10c/4.15c F. A. S. The market has advanced so rapidly that many buyers have been unable to keep up with it, particularly on business done by cable communication. The situation is firm and further buying interest is expected to develop next week. Refiners are sold at least one month ahead on export and have difficulty in maintaining a working margin for domestic requirements which, in the way of new business, has not been coming in as rapidly as export business. Buyers are reluctant to follow the rapid and extreme recent advances. Further advances in refined are expected any day.

Atlantic seaboard refiners are quoting 6c less 2 per cent with two of them still quoting 5.80c. West coast cane refined quoted at 6.40c and beet refined at 5.90c.

The situation is firm, sellers having the market well in hand and tendency continuing in their favor.

Arguments don't get orders and contracts. If you know your business well enough to explain it, there can be no room for argument.
—Coleman Cox.

The Stuff That's Real

"The test of a man is the fight he makes,
The grit that he daily shows;
The way he stands on his feet and takes
Fate's numerous bumps and blows,
Why, a coward can smile when there's nought to fear,
When nothing his progress bars,
But it takes a man to stand up and cheer
When some other fellow stars.

It isn't the victory after all,
But the fight that a fellow makes,
The man who, driven against the wall,
Still stands erect and takes
The blows of Fate, with his head held high,
Bleeding and bruised and pale,
Is the man who will win in the bye and bye,
For he isn't afraid to fail.

It's the bumps you get and the jolts you get
And the shocks that your courage stands,
The hours of sorrow and vain regret,
The prize that escapes your hands,
That test your mettle and prove your worth;
It isn't the blows you deal,
But the blows you take on this good old earth
That shows if your stuff is real."

"Sx" (Essex).

"TIN FOIL WRAPPERS OF CHARACTER"

THE JOHNSTON TIN FOIL & METAL CO.

MANUFACTURERS OF TIN FOIL

6106 SOUTH BROADWAY
ST. LOUIS, MO.

FOR 33 years we have been closely allied with the manufacturing confectioners of America, growing steadily with the ever-increasing demand for high-grade candy wrappers.

Guided by a single policy of unceasing

effort, it is our aim to be a strengthening accessory to the candy trade and to this end we are quick to adopt economical methods and up-to-date equipment, which will enable us to continue to serve the candy manufacturer to the best advantage.



Some Reasons Why Confectioners Should Always Use Franklin "Crystal A"

1. Because of its great strength, it is able to hold in composition great quantities of such material as commercial glucose, fruit pulps and fruit acids; partial inversion would result from the use of a weaker sugar.



2. It can be cooked to a very high degree of temperature without any change in color.

3. A high gloss is easily obtained with "Crystal A," because it can stand such intense heat.

More Reasons Next Month.

The Franklin Sugar Refining Company

PHILADELPHIA

"A Franklin Cane Sugar for every use"



The Problems of Management in 1922

by Arthur E. Swanson, Ph.D.

Swanson-Ogilvie Co., Industrial Engineers

Address delivered before the N. C. A. Convention,
Chicago, May 25, 1922

MANAGEMENT is always a series of problems so that in discussing our topic—Problems of Management in 1922—there is no intention of implying that management does not always have problems. In its final analysis, management is largely the job of visualizing the problems of the future, meeting them as they come, and solving them in the best manner possible. But while management is continually dealing with problems there is no doubt that the character of the problems differs greatly depending on the time and the business conditions.

Business conditions do not affect all industries in the same way at the same time, but they do affect the majority in a similar manner. An analysis readily shows that there are special conditions that account for some exceptions, but, in the main, all business is similarly affected by economic conditions.

Problems of Management Vary

To illustrate how the problems of management vary in emphasis placed on them let us consider the business period of the year of 1919 and the spring of 1920. During that period most business managers regarded as their most difficult problems those of increasing production. In the main these were not the problems that should have been emphasized, and in some instances the managers were wise enough to recognize this fact. In most cases, however, they were not. The majority of the manufacturers were bending every energy toward increasing production, building extensions to their plants, and speeding up deliveries of raw materials. A few exceptional managers when urged by their department heads to do likewise decided, to the disgust of their advisors, to take long vacations. When they came home they found the disgust changed to admiration. There was no longer any need for an increase in plant or equipment; raw materials were present in ample quantity, and production was a problem only from the point of view of reducing output.

During the period from the sum-

mer of 1920 to within a few months ago, the problems of management centered about liquidation, finances, and selling. The liquidation required was frequently so drastic and the financial situation so precarious that the manner of liquidating was frequently of a very undesirable character. Many managers recognized this, but necessity and the fear of the future controlled the situation.

This was particularly true in the attempt radically to reduce costs. The pressure for cost reduction was so severe that managers were constrained to accomplish it primarily by a reduction in wages, longer hours, and the complete elimination of overhead services which could be dispensed with, at least temporarily. Pressure for action, real or imaginary, was so powerful that managers only in a few instances tried to accomplish a reduction in costs through the more constructive, though perhaps slower, methods involved in increasing the efficiency of men and equipment.

All students of business recognize that during the period from October, 1921, to the present we have been shifting from one kind of business situation to another. In some industries the shift has been surprisingly rapid as, for instance, in the automobile industry. In others disappointingly slow. On the whole the transition has been remarkable for its rapidity rather than for any other characteristic.

If we are facing a new situation, there very naturally arises the question of the kind of management problems that should be emphasized during the approaching period. The answer to this question depends on the business conditions that will exist. This involves a prediction which must necessarily be uncertain. We can obtain considerable insight into the immediate future, however, from a study of the present economic situation. Addressing ourselves accordingly to present conditions the following facts stand out very prominently:

Interest Rates

First: Interest rates have fallen from a very high level in 1919 to a comparatively low level at present. This means that money has become cheap and easy, a condition which in the past has always been a forerunner of increased business activity. We shall not discuss the causes of this situation, but merely emphasize it as a factor in the present economic situation which will have a very determining influence on business in the near future. Easy money and low interest rates tend to increase business activity, because they promote borrowing for production and for consumption, and because they reduce the cost of production in so far as borrowed money is used.

Foreign Situation

Second: The international situation has improved greatly. This statement may come as a surprise to many, and it is difficult to specify any single element to account for the fact. There is no intention of implying that the international situation is satisfactory or that nothing remains to be done. It is obvious that very fundamental changes must take place in the economic situation, particularly in Russia, Germany, and Austria, and that the question of international debts and reparations must be settled before we can view the international situation with any great degree of comfort. A significant fact, however, is the steady rise in the sterling exchange rate from a low of \$3.30 a pound to \$4.45 approximately. This increase in the value of the pound which is paralleled in a lesser way in the value of the moneys of several of the other European countries means that regardless of our difficulty in pointing out any specific improvement, such an improvement has taken place, because the exchange rate is a very delicately adjusted barometer of international conditions. Improvement in the international trade reflected in the rise of the pound sterling, the franc and some other European currencies means that there is a gradual restoration coming in the foreign market for American merchandise.

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Every bag sells "Bingle Chocolates"

ONE day the Up and Comer Salesman for Bingle Chocolates offered to supply Bill with embossed confectionery bags. Because they cost him nothing Bill suspected a trick. He accepted and soon discovered that it was *his* trick.

The town soon became mighty friendly to Bingle Chocolates. They called them by their first name when they purchased chocolates either in boxes or bags.

Now Bill wasn't blind to the fact that the embossed confectionery bags were effectively heralding

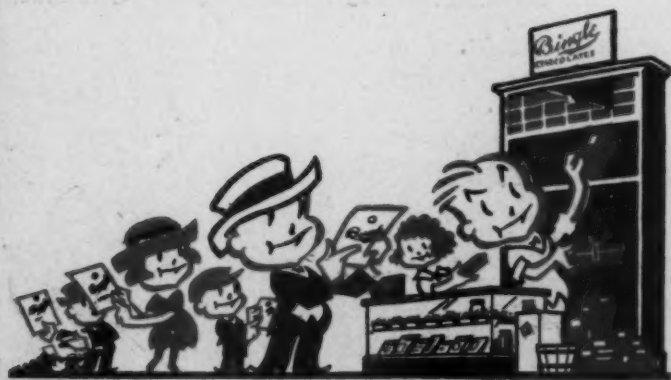


the name and fame of Bingle Chocolates. Also that the increased sales were making a bulge in the old ledger.

In fact, it might be said that the manufacturer was in pretty strong when it came to the matter of Bill's good will.

The manufacturer knew it was subtle advertising to say "Bingle Chocolates" every time one of Bill's customers made a purchase.

Moral: Let Continental Embossed Confectionery Bags advertise your brand.



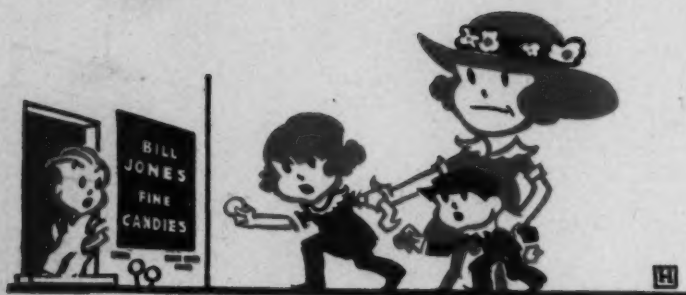
CONTINENTAL PAPER & BAG MILLS

BRANCHES IN ALL



PRINCIPAL CITIES

Yep! Bill's now Successful!!



BILL ran a pretty high-class store; his sales on box and package goods were all that could be expected. Yet he depended to a big extent on the Kiddies and Flapper trade, and that is where he fell down. It seemed that the grown-ups just kept them away from Bill's store, and little wonder.

Bill's line of 5 and 10c goods while arranged attractively on counters, was otherwise unprotected. It was easy picking for the flies, got stale quickly and was unsanitary because of repeated handling.

Bill's wise now—he's switched his affections. He's getting his

full share of the pennies, nickles and dimes from the Kiddies and Flappers. Everybody is satisfied now.

He's handling his loose candies, peanuts, patties and hard candies put up in well-printed, dust-proof, sanitary Glassine Bags. The Kiddies see what they are getting and their grown-ups are satisfied because they know the candy is clean and fresh.

Bill is a sticker now for Glassine Bags and crabs the act if a manufacturer doesn't back him up.

Moral: Pack it in transparent—sanitary Continental Glassine Bags.



CONTINENTAL PAPER & BAG MILLS

BRANCHES IN ALL



PRINCIPAL CITIES

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Wholesale Prices

Third: There has been a tendency for wholesale prices, in particular, to become relatively stabilized. The wholesale price fluctuations during the past six months have been small compared with those of the year previous. There will be further adjustments, but most of them will undoubtedly be more gradual and within a narrower range. There are some adjustments of very big proportions that remain to be made. Building prices are still too far out of line with other prices. So are also the price of coal and railway rates. These major adjustments involving also changes in wages that remain to be made are an important consideration in our study of future business trends. If these major adjustments are made soon business activity will be stimulated very quickly. If worked out over a long period, the come-back in business activity will be much more gradual.

Agricultural Products

Fourth: The prices of agricultural products have been substantially increased, and in the case of such commodities as cotton and wheat seem to be on the increase at the present time. This increase in the value of farm products has a very immediate and potential bearing on business activity, because it determines the purchasing power of about half of our domestic market.

Business Activity

Fifth: Business activity in a large number of lines is definitely increasing. In the steel industry, one of the basic industries of the country, there has been an increase in production from about 33% capacity to 70%. Some industries have not witnessed any material increase, but most industries have.

Basing our judgment on a survey of the present situation we have very good reason for believing that business activity will continue to increase during the coming year. There are some indications pointing to a very rapid increase, but in the main the factors point toward a gradual but definite increase. It is to be hoped that the latter proves to be the correct prediction, because a rapid increase will tend to give a flip-up to prices all along the line and give us another inflation.

The money situation, if taken alone, would tend to promote a rapid increase in business activity, and so would the marked increase in prices of agricultural commodities. The factors that will operate against these are the adjustments that must still

be made in international trade, and the price adjustments that must be made in some lines as previously indicated. The managements in a large number of industries face the situation of increasing business, but volume insufficient to give capacity production and volume secured at relatively low prices. Managements accordingly face the situation of having increased business, but being forced to accept it under conditions which may mean small profits if any at all.

There will be two possible courses to pursue. The one which occurs to all is to push up the prices on the products produced so that even though the volume is substantially less than capacity, it will be possible to operate at a profit.

Will this be the right solution? The writer believes not. We are witnessing a gratifying come-back in business, but it is a hesitant come-back. One of the primary lures that has attracted the consumer into the market has been the low prices established. To shove these prices up at the very beginning of the increase of business activity will tend to give us a set-back unless the result is a great general increase in the price level previously discussed. Neither of these is desirable. It may be that the management has no choice except to increase prices and take the consequences. Before that is done the logical action to take, it seems to me, is to put forth every effort to reduce cost and thus secure a margin of profit with the lower prices.

As stated, the cost reduction that took place during the period from which we are emerging was not of a constructive kind. It was born of necessity, and we have no quarrel with it. Now, however, that we are moving into another period, and business managers can look ahead with more confidence and encouragement, another type of cost reduction of a constructive character should be undertaken.

Constructive Cost Reduction

The steps that a business man should take in his effort to reduce costs constructively are as follows:

1. *Study of layout.* This involves the careful study of the flow of work in the plant or in the store or office with a view to eliminating any unnecessary movement of the material as it moves from process to process. The waste of any unnecessary movement of material is so obvious that it seems strange that there should be any of it in a business, but the fact appears to be that men, as a rule, are oblivious of small wastes. It is diffi-

cult for them to see the waste in the aggregate resulting from an accumulation of small individual wastes. Consequently, when material in a department has to be moved an extra distance of ten feet it does not appear to the department manager as worth while to devise a method of eliminating that unnecessary ten foot movement. An alert management will not be content with the continuance of such wastes. In some instances the construction of the building necessitates the unnecessary travel of material, but even in cases of this kind ingenuity on the part of the management will frequently result in ways and means of re-routing so as to avoid waste in movement.

2. *Standardization of materials.* The advantage of this lies only partly in its direct benefits, such as in the reduction of scrap, and in the storage space, and in investment. Indirect results are far greater. They come through standardizing the processing of materials, both through machines and by individuals.

3. *The study of individual operations* with a view to simplifying the operation and reducing the expenditure of energy for each piece of work to a minimum. It sounds trite to say that there are many instances where substantial savings can be made through this work alone, but as an industrial engineer goes from plant to plant there is perhaps no one thing that impresses him more than the possibility of saving through the study of individual operations.

4. *Production planning.* All managements plan to a greater or less extent. The object of detailed planning is to effect a high degree of correlation of the various factors in business, so that there will be a minimum of waste through having departments or individuals wait for each other, or through lack of balance in any respect.

5. *Reduction in variety of product* is a source of economy in production. In many lines there are undoubtedly some businesses that cannot effect any reduction in cost through concentrated production on a more limited series of styles and varieties than they are carrying, but inasmuch as almost all managements have been reluctant to narrow their lines until they have the great advantage of such action proven to them in their costs leads one to believe that the number of businesses that can profit by narrowing their lines is greater than now thought possible.

Costs. Naturally it is assumed that all business men should know their costs so as to be in a position to know where to press for reduction. The



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importance of cost keeping cannot be over-emphasized at any time. Cost keeping methods can be devised for any business. They will vary in form depending upon the industry, but they will be alike in principle. This industry is to be congratulated on having taken a firm stand in favor of sound cost keeping. The point should always be stressed that costs are something to be utilized and that the value comes to the management only in proportion as it utilizes them. Some managers utilize costs primarily for the determination of selling prices, and others have some other particular purpose in mind. Costs should be utilized for a number of purposes, and unless they are, the costs are not as useful as they should be. Costs should serve as a basis for the determining of prices; as a basis for comparing costs in different periods for the business as a whole; as a basis for determining the productive efficiency of departments, and for the purpose of guiding the management in effecting cost reduction and the elimination of unprofitable lines.

As the reduction of costs during the coming year will stand out as the management's greatest problem the importance of a knowledge of costs is obvious.

**Superintendents and
Chocolate Foremen :**

Minimize your returned
chocolates; reduce choco-
late department overhead;
increase chocolate output
in summer.

USE

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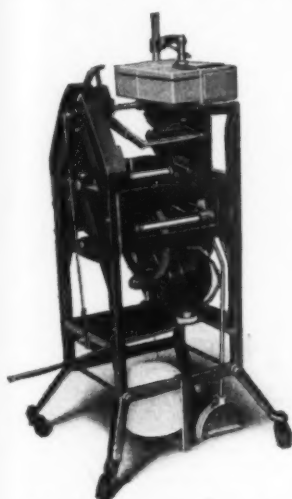
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The Tying Machine

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Tie your five-pound candy boxes on the new model Bunn Box Tying Machine, which winds string both ways at one operation, tying tightly.

Rapid! Efficient! Economical!

A thoroughly developed and reliable mechanism, good for years of hard service.

Also one-way tying machines—double wrap. Models to suit all purposes.

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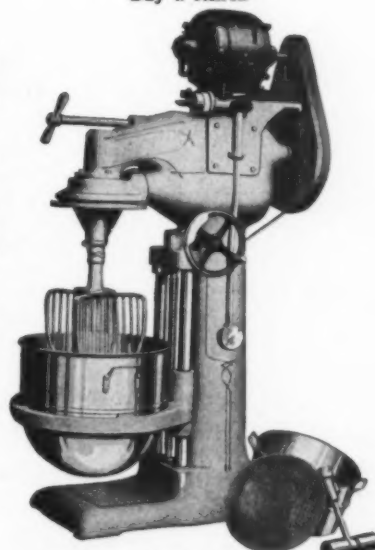
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Manufacturers of
Mixing Machinery of All Kinds

"Buy a READ"



Read 3-Speed Beater—Type "D"

To give your candy the full flavor and aroma of a ripe orange
You must use an oil pressed from ripe fruit.

You have this in our

OIL SWEET ORANGE CALIFORNIAN

May we convince you with a sample?

W. J. BUSH & CO., Inc.

370 Seventh Ave., NEW YORK, N. Y.

*Most reliable gelatine
for Confectioners—*

WHITTEN'S GELATINES

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Liquor Chocolates
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Are the Standards of the Trade for Confectioners' Use



Sweetened and unsweetened; light, medium and dark, whatever the difference of color or flavor, all are absolutely pure, smooth and uniform to work.

The taste and appearance of confections depend largely upon the coatings.

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DORCHESTER, MASS.

57 Highest Awards at the Expositions of Europe and America

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PUDDING

A new flavor that will add a refreshing touch to your Nougats, Fudges and Creams.

This flavor has been adopted by several very prominent factories and their re-orders testify to the merits of it.

It is not easy to describe its unusual taste. Better let us send you a sample so you can try it out.

Write today, on your business stationery, please.

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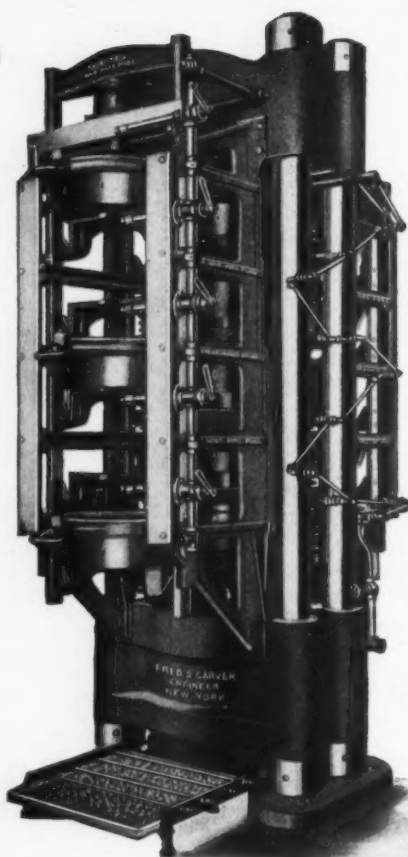
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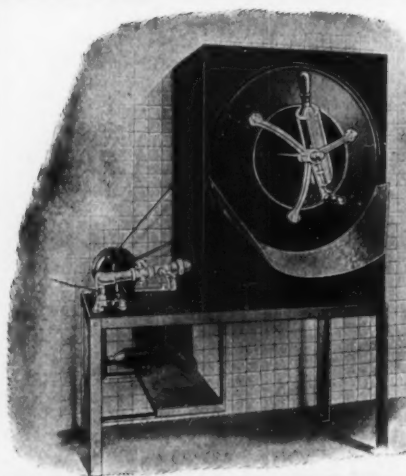
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Greater Economy—More Profit Quicker Turnover and Sales

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POPCORN POPPERS
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No. 53 Rotary Popcorn Popper—used by most big candy manufacturers as an important adjunct to their business. One of the most economical to operate. Guaranteed lowest gas and electrical consumption. The blower attachment saves at least one-fourth of the amount of gas and labor usually consumed in popping. Pops 2½ pounds of raw corn at one popping, producing 12 bushels of popped corn per hour.

Used by Shotwell Mfg. Co., Chicago; Beechnut Packing Co., Rochester, N. Y.; Maple Crispette, Ltd., Montreal, Canada, and hundreds of others.

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Read What "The Nut House" Says:

Chicago, Ill.
Kingery Mfg. Co., Cincinnati, Ohio.
Gentlemen: This is to confirm our telegram of May 19th in which we requested that you enter an order for one No. 407 Peanut Roaster as per your letter of May 12th. We desire that you make the shipment of this Roaster on August 1st and place the order with you in plenty of time so that there would be no doubt as to your shipping promptly on that date. We have three of your No. 407 Roasters running now of this size and they are giving very good satisfaction.

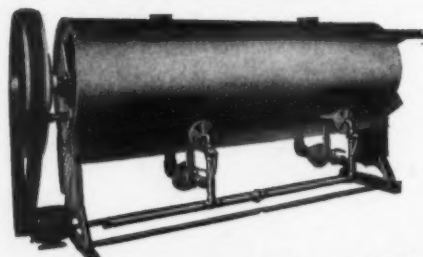
Yours truly,
THE KELLING-KAREL CO.,
"The Nut House."

No. 407 Peanut Roaster—a wonderful machine for quick, efficient roasting. Five bushels of peanuts in the shell or 200 pounds of shelled nuts at one roasting. In this machine, the roasting cylinder is given additional length, permitting the peanuts to spread over a greater surface and wider range of fire in order to produce a more even roast than can be obtained in other more compact machines.

Uses 70 cu. ft. of gas per hour; ¼ h. p. motor; shaft on roller bearings, reducing friction to a minimum.

Write for FREE illustrated catalog showing hundreds of different styles

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Will wrap any machine-made sucker.

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Confectionery Engineers

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NULOMOLINE

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AFTER continued experimental work our Service Department desires to announce to our customers that it has devised means and methods for preventing cream centers from bursting and fermenting.

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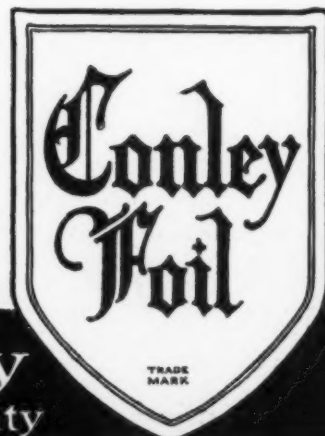
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*Distinctive dress
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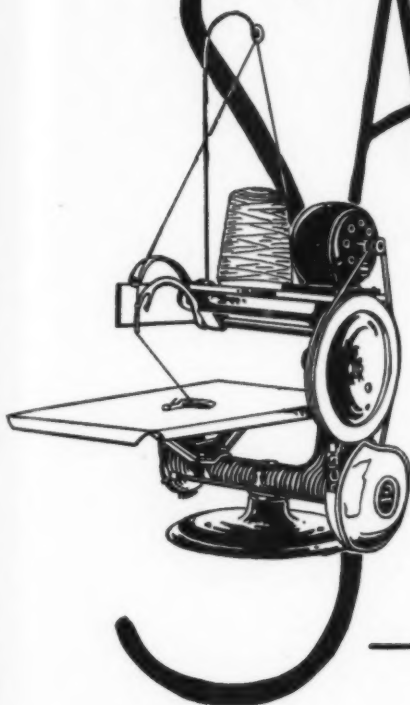
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A Machine Installed Is Money Saved—

To Say Nothing of the Convenience

Candy Manufacturers who are using the Saxmayer Bundle Tyers say they could not get along without them.

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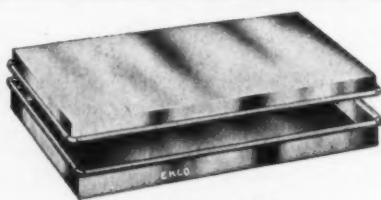


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Made in our Sanitary Style of one-piece metal, bound with extra heavy wire. Absolutely water-tight. No sharp corners. Syrup cannot embed itself in corners.

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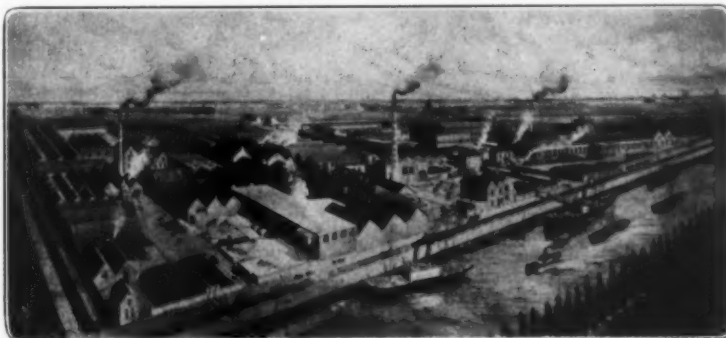
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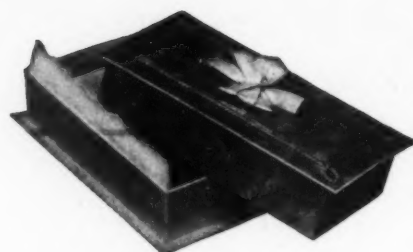
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K-W made caramels *won't*
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no matter how *HOT* the weather

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Is the Box as good as the Candy?

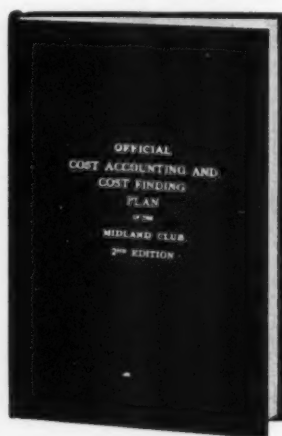
After you have made your candy as good
as you can—don't handicap its sale with an un-
worthy box. Many an otherwise shrewd and
thorough-going candy manufacturer is doing
just this!

Are you sure your boxes are all they
should be—could be?

Ask the SCHULTZ organization to sug-
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submitted to you without cost or obligation—
may prove a revelation to you.

OFFICIAL Cost Accounting and Cost Finding Plan

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Boxes are Trade Magnets

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our task to supply the demands of a very
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Buck, brand new; Warner Depositor, practically brand new. This equipment can be bought at a very low figure. Oswego Candy Works, Inc., Oswego, N. Y.

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Engburg Upright High Speed 400 Revolution, 6 x 7 Steam Engine. Perfect condition. \$200.00. Spangler Mfg. Co., Bryan, Ohio.

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FOR SALE CHEAP—SLIGHTLY
used Savage Tilting Mixer, 35 gal. capacity; 60 gal. Steam Jacket Kettle. E. F. Allingham Manufacturing Co., Inc., Securities Division, 600 E. & C. Bldg., Denver, Colo.

FOR SALE—1 15 H. P. GEN. ELECTRIC MOTOR, Direct Current, Shunt wound motor type E. C., Class 4, No. 2536, Form B, Amperes 25, Volts 500, 15 H. P., Spec. No. 8067, Speed 1200; with Starting Reostat. 1 Elevator Operator Controller Box, Moline Elevator Co., Moline, Ill.; 7½ H. P., 500 volts, Direct Current No. 11. 1 7½ H. P., Direct Current, Compound Wound Elevator Motor for single belt machine; made by Nothern Electric Co., Madison, Wis.; Volts 500, Amperes 13, Speed 540; made special for Moline Elevator Company. 1 Lambert Peanut Roasting Outfit, 225-lb. capacity; Roaster No. 103, gas equipped, with fan and cooler box; good condition. 1 Racine Continuous Cutter with three sets of cutting heads, Mac. No. 112, 1 for waffles, 1 for tribbles, 1 for small cuts, with full sets of blank knives for cutting different length goods; made by Racine Eng. Company. 1 Savage Bros. M. M. Beater, 100-lb. capacity; good condition. 1 Sealed End Stick Machine No. 108 with motor and blower; made by Racine Eng. Company. 1 2 H. P. Induction Motor, speed 1200, three phase, 60 cycles, 220 volts, Form C; General Electric Co. 2 Power Starch Printers; made by National Equipment Co., Springfield, Mass. G. W. Chase & Son Mercantile Co., St. Joseph, Mo.

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Sheet Steel Stoves, Figure 502; have been used only a short time; may be used with coal or coke. Emmerling Brothers, Johnstown, Penn.

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HELP WANTED

WANTED—A FACTORY SUPERINTENDENT thoroughly familiar with all branches of confectionery; a man with creative ideas who is working for a future. Address F241, c/o The Candy Manufacturer.

LEADING CHICAGO MANUFACTURER is in need of experienced, high-grade marshmallow superintendent. Give detailed reply, outlining experience, past record, salary expected and references. Excellent opening for right man. Address F237, The Candy Manufacturer.

WANTED—AN EXPERIENCED PAN
man by old established firm at Vancouver, British Columbia, Canada; state salary desired, where formerly employed, and full particulars of experience and line you can make. Address F236, c/o The Candy Manufacturer.

WANTED—WORKING SUPERINTENDENT thoroughly capable and experienced to produce complete high-grade line of candy; factory located in city of 60,000, near Chicago. Give full details in your reply. Address F239, c/o The Candy Manufacturer.

WANTED—"ALL AROUND" CANDY
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WANTED—MAN THOROUGHLY UNDERSTANDING pan goods, with creative ideas. Address F240, c/o The Candy Manufacturer.

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FOR SALE—MODERN CHOCOLATE,
confectionery and coffee plant, vicinity Philadelphia, fully equipped, making coatings, cocoa, butter, fancy eating, coffee roasting, etc. Bargain and easy terms to reputable purchaser. Moving to our new plant. Investigate this offer. Address F234, c/o The Candy Manufacturer.

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REPUTABLE LINES WANTED FOR
Louisiana, Mississippi, Alabama, Texas. Consolidated Brokerage Co., New Orleans, La.

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WANTED—CANDY MANUFACTURERS
to ask us for samples and information on Mapleine, the perfect maple flavor, which does not cook out or fade out. Dept. CM, Crescent Manufacturing Company, Seattle, Wash.

WANTED—WE USE PREMIUMS TO
increase candy sales. Have you anything especially attractive to offer? Winchester-Moore Company, Macon, Ga.

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FIVE OF MY BEST COLLECTION
letters with instructions on installing an efficient collection system on request. Francis J. McMenamin, Box 171, Chicago.

REMEMBER—The Candy Manufacturer is the factory superintendent's own magazine—a specialized medium for the practical men of the candy and chocolate industries.

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for Manufacturing Confectioners Exclusively

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The Candy Manufacturer

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Now Being Compiled—
The Candy Manufacturer Blue Book

June, 1922

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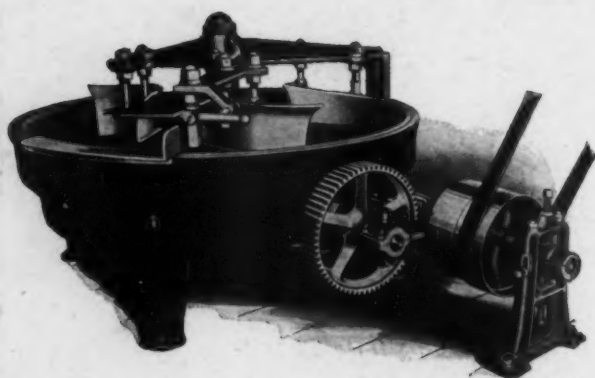
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The Dayton Beater and Cooler

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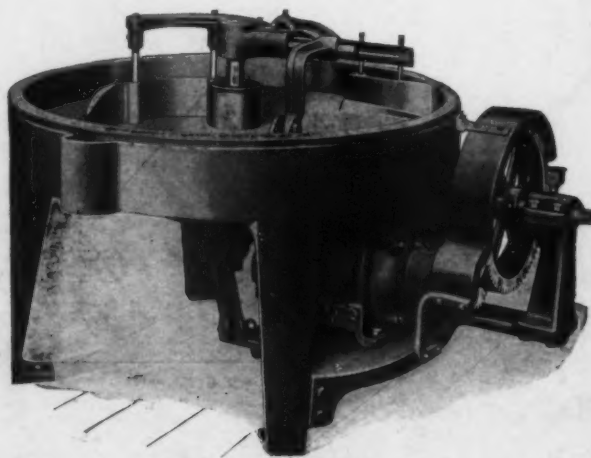
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